



THE
DALTON LABORATORY PLAN

BY THE SAME AUTHOR

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THE DALTON LABORATORY PLAN

BY

EVELYN DEWEY

AUTHOR OF

"SCHOOLS OF TO-MORROW"

"NEW SCHOOLS FOR OLD"

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PREFACE

THIS book is an attempt to answer the questions of teachers and schools about the Dalton Laboratory Plan. The plan is new. It has been in operation in one school for eighteen months and in two others for a little over one year. Therefore, it is not possible to present it as a tested and proved "system," or to say that it must be arranged in such and such a fashion. It is better that it should be so; for education will never be static. It must develop and change with the increase of human knowledge and the changes in society. As long as man develops, his education must develop.

Miss Parkhurst has suggested an arrangement of the school building and programme that seems to give children some of the things they need to grow up successful adults in the world of to-day. Though she has a strong personal bias on the curriculum, the plan itself does not dictate what facts or subjects children must study. It promotes a natural and

PREFACE

thorough way of studying, a way that is in harmony with our present knowledge of psychology, and that, therefore, tends to develop intelligent habits. The growth of character is the foundation of education. The Dalton Laboratory Plan is an experiment in an environment that permits character development. The particular school is the inheritance.

The exchange of information between teachers and schools is essential for the improvement of both the environment and the inheritance. Each teacher makes discoveries as she meets her problems. These discoveries need to be shared in order to test and establish them by use. Miss Parkhurst offers a new conception of school organisation that has appealed to many schools as a better way. It needs an open-minded reception from all schools and teachers, so that children may have the benefit of whatever it can contribute and so that it may be tested, altered and refined into a more and more useful and growing tool.

The theme of the book follows as closely as possible Miss Parkhurst's conception of the plan. We have been in constant consultation as to facts and have freely exchanged opinions

as to theories. We have not always agreed about the theories. The writer is responsible for the educational generalisations, and therefore any discrepancies and disagreements should be laid at her door.

Thanks are due to Miss Rosa Bassett, head mistress of the Streatham County Secondary School, London, England, to her teachers and pupils for the history of the plan in their school, and to Mr. Ernest Jackman for information about the Dalton High School in Massachusetts. Portions of the last chapter first appeared in *The Nation* of May 4th, 1921, and are reprinted with its editor's consent.

E. D.

NEW YORK CITY, December 1921.

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THE DALTON LABORATORY PLAN

CHAPTER I

THE PLAN

THE Dalton Laboratory Plan was developed in an attempt to get a school organisation that would meet the needs of modern education under public school conditions. Miss Helen Parkhurst, the originator of the plan, conceives of schools as sociological laboratories where community life and community situations prevail. The children are the experimenters. The instructors are observers, who stand ready to serve the community as their special talents are needed. As observers, they study the children to find out what environment will best meet the immediate educational needs. As specialists, their function is to give technique, to point the way to the acquisition of information, and to maintain intellectual and technical standards.

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A new and radically different school organisation has been built up on this basis. The very set-up of the school programme enlists the co-operation of the children. By giving them real jobs, their wills become an active force in the learning process.

A pupil in a Dalton school said, "I like this school because each child has ample time to do his work. In other schools, when you go into arithmetic, you have to do arithmetic for half an hour and you have to do so much that you get mixed up. Here, if you begin to get tired and can't make your mind work right on one thing, you can go into another room and forget all about the first thing, so you don't get muddled up. Later, you can do the arithmetic. I like it, too, because you can go on and do your work and not be held back by children who are slower."

It may be true that children do not know what things are good for them, but it is equally true that left to themselves they know the ways that are good for them. If teachers watch children at play or at work out of school, they can observe the conditions for efficient learning. They will find very little in common between their class-rooms with their bells, fixed recita-

tional periods, and endless lectures, and the pupil's own methods.

Out of school, a child knows what he is going to do. Whether it is a block tower or a stamp collection, the goal is there before the work is started. In the class-room, there is often no attempt to let the pupils in on the task at hand. More lessons begin with "Class take down these examples," or "Take out your histories, turn to page 44, Mary begin at the second paragraph," than with even such a general statement as "We will talk about the geography of Chile to-day." Of course, the class knows that the history or reading period has arrived. But the thread of a task is easily lost when it is done under arbitrary conditions. Without this thread, it is largely a matter of chance whether a pupil gets any understanding or control of the material presented as a "subject."

Playing or working at home, each child adjusts his task to his natural rate of speed for working. He does a thing step by step without obvious spurts of haste or moments of waiting. In school, the speed of a class lesson is fixed by the teacher. It is aimed to fit the average ability of the class. But there is not a single individual exactly at average. Each child has

his own rate of working, and the majority of the class approximate the average rate. Yet each one of these children is expected to follow every direction the instant it is given. The result is, of course, that the slower pupils hit only the high spots; fix their attention on keeping up; get confused and muddled; and try to remember enough words so they can get through the lesson. It is no happier for the children who work rapidly. They are through before a new direction is given, but they have to wait for the teacher. Their minds wander. They have just started on an interesting train of thought. The new direction comes, and they are jerked back to the lesson for another moment's attention. They grasp the point and are again hung up. For both extremes there is a constant interruption of interest and attention in order to adjust to the class that tends to kill initiative. Even the pupils nearer the average are not free to follow their natural rate, but must strain or be bored in order to conform exactly.

In free activity, a child works until he is through, or until he is tired and finds his attention wandering or his mind becoming confused. In either case, he has grasped what he has done and it has the value of a completed experience.

In the class-room, the opportunity to work by orderly stages is dependent on the clock and the skill of the teacher. Perhaps the class has been roused to a high pitch of interest and mental alertness; perhaps they are just beginning to understand some difficult new material. Suddenly the bell rings. Books must be shut. The lesson is over, and excited or tired minds are jerked to a new subject.

The constant interruptions to natural and orderly mental processes imposed by the organisation of the school programme account for the inadequacy of a school education as much as shortcomings in curricula. The mind is a machine that works continuously and at its own rate. It cannot stand constant over-speeding or frequent periods of blankness without revolting. Every teacher feels sometimes that she would like to shake her class into life and response. They have been shaken so constantly that the electric shocks of bells, rapid-fire questions, competition and devices have failed to spur them to even the usual service. They let their minds drift, expecting the teacher to guide them in and out of the labyrinths of the daily programme with the minimum of co-operation on their part. Is it any wonder that when we

discount effort and interest, school ceases to become a developing process and the pupil gathers only the moss of information that comes with passivity? The Dalton Laboratory Plan offers a school machinery without these features. It will work with large classes and meagre budgets.

Miss Parkhurst says, "We have been viewing things through the wrong end of the telescope. What should be taught, or how this ought to be ushered in, should not be the most important problem in school improvement. We want teachers with original ways sufficient to answer the needs of each individual. Let us free them from the yoke of method and system, and make it possible for them to use their own good judgment." This freeing process is the essential contribution of the plan.

The plan suggests a simple and economical re-organisation of school machinery that permits the school to function as a community. It can be used as an efficiency measure without making changes in the curriculum, or as the first step in the development of a new basis for elementary and secondary education. The plan does not suggest a curriculum—it offers a way by which school life can function as real life

functions in a community. School work is done in such a way and under such conditions that groups and individuals are brought into constant inter-action, and it is impossible for any one to live independently of others. The plan has certain tangible pedagogic advantages for public schools with their big classes and fixed curricula. With them, it may be looked upon as an efficiency measure for children, the learners.

The plan preserves grouping by grades. The grading may be done in any way fitted to meet the needs of the particular school. But it does away with most of the drawbacks of grading. Pupils work at their own rate of speed. They may work fast in some subjects and more slowly in others, and still remain with their group. The quick pupil can go more thoroughly into subjects that interest him, looking up special topics or doing supplementary reading. The slow child can confine himself to the essentials of a subject and work on them until they are thoroughly mastered. Children with marked bents can save time by hard work. This time can be spent in the subject laboratory where there is the equipment that feeds their particular interest. A child can remain a member of his appropriate age group and do some of

his lessons with older and some with younger groups. But the plan does more than preserve the advantages of individual study and subject promotion. It requires a method of study that calls forth the kind of intellectual and moral habits that are so necessary for the development of an intelligent, responsible and successful citizen.

The re-organisation plan worked out by Miss Parkhurst is adapted to eight grades, beginning with the fourth grade or its equivalent. Children would begin to work under the plan when they have finished the first three years of school and would continue working under it until they enter a college or university. Since it makes no demand on the curriculum, it can be used for schools divided into intermediate grades and junior and senior secondary departments, or to schools with a four-year secondary course.

The plan preserves grades for convenience in handling the children, but instead of classrooms and one seat for each pupil there are subject laboratories. One or more rooms are assigned for each subject that is taught in the school. The specialising starts in the fourth grade instead of in the secondary department.

as in most schools at present. Instead of keeping the teacher a "jack of all trades," each becomes a specialist in charge of one of these laboratories. In the youngest grades, where there are not now subject teachers, the grade teachers can be assigned to subjects on the basis of their interests and special aptitudes. In the usual elementary school, the grade teacher now has to teach physical culture, hand work and art, regardless of her interest or talent. Such an arrangement necessarily involves a waste of time. Under the Dalton Plan, grade teachers with special aptitudes can be assigned to laboratories where they give the pupils of all grades the benefit of their interest in a particular subject.

Like all machinery for instruction, the smaller the pupil unit per teacher the more efficient the teaching. At the same time, the plan will function with the units that are found in the usual large public school. A secondary school that is using the plan in England has a unit of about one hundred and ten pupils per teacher. Miss Parkhurst believes that a teacher can meet two hundred pupils as well as she can handle that same number in the usual class periods. In large schools there may be a

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number of laboratories for each subject; each assigned to one teacher who devotes her time to certain grades. Instead of having one laboratory for all the work in mathematics, there will be one for each mathematics teacher. Each will be used by the pupils of the grades she is in the habit of teaching. If she finds the attendance so uneven as to interfere with the pupils' work, she can fix certain hours for helping certain classes. In this way, she will not have to deal with any more children at one time than she does at present.

Having the pupils go to special rooms for each subject permits economy in equipment. In geography, for instance, instead of maps, globes, atlases and reference books for each grade, one set of such material is installed in each geography laboratory. Since the teacher is in this laboratory during the part of the school day set aside as "laboratory time," material is available at any minute. The school library can be made more useful than it often is. Each laboratory will have a shelf of books where volumes that are commonly used for special reference and supplementary readings, as well as those that may stimulate the children to further research, are kept. Any

book that a teacher or pupil wants is thus available at a moment's notice.

Many educators believe that pupils suffer from too frequent changes of teachers. Under the Dalton Plan a child will have the same teacher in the same subject year after year. His first year he must adjust to a different personality for each subject. After that, his work may change from year to year, but he will be dealing with the same teachers.

Each pupil has his work of the school year broken up into contract jobs. There are as many contracts as there are months in the school year. These consist of outlines or assignments of the work that are posted for each grade in each subject at the beginning of the month. The child reads these assignments and sees his work for a month, hence the word contract assignment or contract job. Seeing what he is to do, he accepts the contracts and agrees to accomplish it. The actual working of this plan can best be illustrated by specific example.

Horace Marshall is a pupil in the fifth grade in a Dalton public school in the city of —. School hours are from 8.45 a.m. to 4 p.m., with an intermission from 1 p.m. to 2 p.m.

From 8.45 a.m. to 12 noon is considered free time. It belongs wholly to the pupil and it is his responsibility to organise it to suit his needs. The half hour between 12 and 12.30 is taken up with pupil assembly, special work, ~~or~~ committee meetings. During this time, the academic instructors meet for faculty conference. The following half hour is devoted to group conferences. All the pupils of a grade report to an academic instructor at this time, but they report to a different teacher each day, so that there is a weekly report for each grade in each subject. The remainder of the day may be used for work in art, manual training, recreation or athletics, any work which can be readily handled in grade groups.

The school year is ten months. Horace studies five academic subjects—history, mathematics; geography, English literature and some form of science. Therefore, Horace has five contract jobs a month, or fifty during the school year. Besides this, he will have a certain amount of work in special subjects—gymnasium, carpentry or art. As far as the school staff permits, this work should also be managed by contract jobs in the subject laboratories. Where such instructors are on part time only, these subjects

may be conveniently handled in groups in the afternoon, or at the close of the morning's socialised time. Horace works in all of these subject laboratories instead of in a fifth-grade room. He has a locker for his personal school belongings instead of a desk. His group is under the special care of some one teacher, and will meet in her laboratory for a short period each day, usually at the beginning of the morning. Horace's adviser talks over class plans and problems with the children, makes announcements and suggestions to help groups and individuals in planning their day's work. Then Horace and his class-mates get out their assignment cards. On these cards, they have copied in detail the work of the monthly contract in each subject.

There is no time schedule, no bell to summon Horace from one room to another. He determines to work on his geography this morning and so goes to the geography laboratory. His work may be reading references, questions to be answered, maps to be drawn or other pertinent matter. He carries on his work independently, entering and leaving the room when and as he pleases. The time he spends there is determined entirely by his interest-span and his

fatigue. If other fifth-grade pupils are in the laboratory at the same time he may join them. The group is allowed to talk, help each other, exchange books and papers, in fact they should be encouraged to work together. As they work, ~~they~~ make notes on questions they cannot answer among themselves or on any point where the teacher's advice is needed. She is in the laboratory during the whole morning helping groups or individuals, so Horace is free to go to her as he requires assistance. Or she may call his group to her to see what they are doing, discuss difficult questions or make suggestions about better ways of working.

Before leaving the laboratory, Horace indicates on the instructor's subject graph the amount of work completed. If he is in any doubt as to the amount covered, he may ask the instructor to assist him in this. He also indicates the amount he has done by a line on his own contract card. If he leaves before the end of the free laboratory work time, he will select another subject, go to that laboratory and work there as he did in the geography room.

If Miss Parkhurst's programme is followed exactly, Horace will have an hour at the end of the morning for group work with his own grade.

The first part of this he will spend in assembly, in work for the school activities he is interested in, or in having a special lesson, or giving a group report with all or part of his grade. The last half hour he spends in regular form or group meeting. Since he has only one of these a week in each subject, it will not pass as the daily recitation does. Miss Parkhurst calls this group work "class meetings or conferences," in order to distinguish it from the ordinary recitation or oral lesson period. Enough time should be given class conferences to enable the teacher to present things relating to the subject outside the pupil's experience, things impossible for him to discover with his limited time and equipment; to guide real discussions of the subject by the pupils and to review and round up the assignment.

In the afternoon, Horace's grade will probably have a more regular time-table. Gymnasium recreation, music and certain kinds of shop work, notably cooking, depend upon organised groups for their value and their success. Part of the afternoon may be spent on a time-table and part in free study for art and carpentry, or all of it may be given over to classes and time found for more than one

recitation a week in the academic subjects. Recitations in American schools correspond to what are known as oral lessons in English schools.

One of the advantages of the plan is that each school can adopt the time-table best suited to its needs. The one essential is that enough time be saved for free study to enable the pupils to work on contracts instead of daily lessons, and to work at their own rate of speed.

Whether pupils have home work to do besides the time put in in subject laboratories will depend on the length of the school day and the proportion of the day given to free study and to classes. In Horace's all-day school, the children ought to get practically all their work done in school. In the English school that will be described later, pupils have practically as much to do at home as they did under the old plan. When the laboratory time is not long enough to do all the work required in the contract, some time should be spent planning with the pupils. The first attack on new problems, reference work, map drawing, anything that is likely to prove difficult or that requires the use of apparatus and equipment should be done in school, and literature, essays and drill work

where the principles have been mastered should be saved for home study.

The laboratory plan has given its pupils a definite advantage in mental and social habits where it has been tried. Free study time has made it possible for children to adjust their work to their own rate of speed. This eliminates idleness for the quick child and over-strain and jumping for the slow child. It permits continuity of interest and effort by minimising artificial interruptions. But above all, it permits children to learn by the scientific method, to investigate and discover for themselves.

Pupils differ in their likes and dislikes of subjects. The time needed for mastering a subject is dependent upon the interest the pupil feels in it—the greater the interest, the less the time required. Subject antipathies are usually identical with subject weaknesses. Readjustment of the time schedule permits individual pupils to devote more time to their particular obstacles with the result that antipathies are eliminated.

It is well known that pupils often undervalue the time of their instructor. Their own time, however, is generally rated with some accuracy. How it can be utilised with maximum efficiency

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under the Dalton Plan is shown in the arrangement of the school day described above.

The usual class-room organisation, in spite of the number of children working together, has few of the characteristics of group work as carried on outside the school-room. Classes are too large. Individual differences, ability and interest-span are too varied to enable the class to function as an entity. Small groups that come together voluntarily in the subject laboratory can work creatively. Interest in the immediate problem has drawn individuals together. Each is anxious to contribute and to listen. Since the study that preceded this discussion was individual, each has an individual point of view and special information. Putting all this together, the result is a more thorough, finished, and child-like piece of work than is possible under a system of recitations.

Miss Parkhurst feels that different subject laboratories permit the children to enjoy a larger world. In any one laboratory the work parallels the life of a real community. The children deal with each other, they share experiences and communicate them to others. There is a common interest in the study in each laboratory, a thing impossible in a room where

several subjects are being taught. The atmosphere of the laboratory eliminates to a considerable degree, if not entirely, the "drive" which is often evident in a class-room. Besides the intermingling within the grade referred to above, there is, of course, intercourse with other groups. Older children are able to help younger with work and assignments they have already been over. Younger pupils read the assignments and see children working in grades beyond their own. The spirit of mutual respect and responsibility that arises from friendly pupil-teacher relations among children is recognised. While pupils do not do identical work, the relationship between advanced science and elementary science is closer than that between different subjects in the same grade. Experiments in geography do not differ in kind, only in degree. This similarity tends not to distraction, but to positive helpfulness. There is a legitimate disorder in a carpentry shop, which would be disturbing to the atmosphere of an English laboratory. If a child is working on a problem in English which involves carpentry, Miss Parkhurst believes it is better for him to decide to go into the carpentry shop. This is of real benefit in two ways. It definitely

classifies his knowledge, and it brings to him a clearer understanding of the inter-relation of his subjects. Its effect upon his nervous organism is also noticeable. Freedom to move about produces a certain relaxation which releases energy for other purposes.

Each individual and each group learns that privileges may not be enjoyed without a corresponding responsibility. It is not what they do, so much as whether or not they feel each piece of work as their own responsibility.

The relation of teacher and pupil is transformed. Instead of the "lock-step" rule, a natural contact is established. A respect without fear, a joy in daily living, a willingness to do hard work—all these and more have been observed in the schools where the plan has been tried.

CHAPTER II

THE LABORATORY

THE reorganisation of a school on the Dalton Plan will change conditions for study. A flexible attitude towards these changes is necessary if the plan is to succeed. The teacher can no longer judge each pupil on the basis of the amount they learn in comparison with the other members of the class. Where pupils are studying individually, they must be judged individually. The teacher must appraise the contract as a whole. She cannot divide it into daily portions each to be marked good or bad. Until it is complete, her function is not to grade, but to give expert assistance and advice, so that subject-matter is mastered and general progress is made according to the ability of the individual child. At the same time, there must be some daily check on the amount of work a pupil is doing. This is as essential for him as for his teacher. Each child is working on at least five assignments at a time. He must be able to

know how far he has progressed with each. To give him the moral advantages that come from individual study, some device must be used by which he can check his own progress.

Miss Parkhurst has developed a system of record keeping for teachers and pupils that has worked efficiently in several American schools. A bulletin board hangs on the wall of each laboratory. On this the teacher posts the month's contract in outline, for each grade and the weekly contract, in such form that the average pupil can take it and go ahead with his work. Each pupil has a contract card. There are different colours for different grades, so that an individual is easily placed in the laboratory.

The card is divided into vertical columns, one for each subject the pupil is studying. It is ruled in four rows, each indicating an amount corresponding to a week's work on the contract, *i.e.*, a square on the card then represents one week's work in a subject. These squares are subdivided into five rows, each row representing one day's work in the subject. Our fifth-grade pupil starts a new month of work by going to his geography room. He copies the outline of the month's assignment on the back of his card. He studies the week's assignment until he

understands it, and determines what his first step should be. He may become absorbed in his work and remain in the geography laboratory for several hours. He has, of course, done more than one-fifth of the week's assignment in geography before he leaves. When he is ready to leave, he goes over what he has done and decides that he has finished, say, three-fifths of the assignment. In the geography column on his card, he will draw a vertical line which covers the first three subdivisions of the square for the first week. In the next subject laboratory he goes to, he will follow the same procedure, crossing off the proportion of the week's work that he accomplishes in each subject. In order to keep track of the records which are made each day, the number 1, 2 or 3, etc., corresponding to the day of the week, is written on each day's line.

When the expression "time for a contract" is used, it should be noted that this does not mean so many minutes allowed for each day's work. It means the amount of work done at any one time on the week's assignment on the basis of a rough division of that assignment into five parts.

A pupil is not allowed to start a new contract

in any one subject until he has finished all the subjects of the contract of the month before. This means that he must plan his distribution of time. A heedless child who follows his impulses may easily find the first month or two of a free programme difficult. He will go to the laboratory of the subject which interests him most or which he finds easiest. Those portions of his contracts finished, he finds his difficult subjects still before him. Time will go slowly. He will be doubly conscious of his difficulties and he may spend more time than he ought in the shops or in reading in the library. The end of the month arrives and the rest of his class are starting interesting new assignments. He cannot go on, because his difficult subject is not finished. With a real effort he gets down to work and finally completes the contract to the teacher's satisfaction. The next month he remembers his experience and plans his time better. He will start his history early in the month, do a little of it each day, and save some of the easy or more interesting work to give him mental rest and stimulation all through the month. Gradually, he will work out an arrangement of his time that is co-ordinated with his mental habits.

Rarely a pupil will be found whose habits and sense of responsibility are so poor that he will fail completely in organising his time to complete his contracts. For such a pupil, it is a simple matter to make a programme that requires him to report in certain laboratories at certain periods. Seeing his fellow-pupils working independently, the normal child will be stimulated to prove to his teachers that such special supervision is unnecessary, and after a few months, during which his programme is adapted to his progress, he will be able to work as the others do. But this device should not be used, unless it seems necessary.

The lessons learned by having to plan his own time are as necessary to a child's education as the multiplication table or a legible handwriting. Ability to fit a definite job into a definite time, to plan a coming day, and to improve in the ability to organise one's work are large factors in adult success. Like all habits, they cannot be established without practice. Miss Parkhurst believes that a child of nine or ten has enough experience to be ready to take the responsibility for his own school life to this extent. Modern education lays emphasis on the necessity for training that develops initiative,

organising ability, resourcefulness and critical judgment. The average class-room methods furnish comparatively few opportunities for the exercise of these qualities. In the old-fashioned class, they had almost no scope. Every school that preserves the single text-book, the daily lesson and recitations to measure information must rely on more or less artificial devices to develop them. Where pupils are free to organise their own time, these qualities can function in the same way they do in real life. No matter how rigid the standards or how routine the task in life outside of school, responsibility for both accomplishment and method is on the individual. In a Dalton school, each pupil works and plays as a self-directed, self-disciplined individual, as he must do outside of school. The record cards are necessary to enable the inexperienced person to keep track of his work. They give him a picture of his work in such a concrete form that he can check, plan and evaluate from day to day and from month to month.

The contract card reproduced here shows the way one pupil planned his assignments for a month.

A record-keeping device is also necessary for

NAME <i>A</i>	CHILDREN'S UNIVERSITY SCHOOL		DATE BEGUN <i>Mr 22</i>	DATE COMPLETED <i>June 18</i>	No. of Weeks <i>4</i>	No. of Days <i>24</i>	Total _____
	AGE <i>9</i>	GRADE <i>6</i>	3rd <i>Contract</i>	ASSIGNMENT			
4th WEEK	21	12	11	10	11	16	
					19	15	
3rd WEEK	20	13	12	11	18	14	
					10	7	
2nd WEEK	19	14	13	12	17	13	
					6	5	
1st WEEK	18	15	14	13	16	12	
SUBJECTS	MATHEMATICS Test <i>B</i>	GRAMMAR Test <i>A</i>	READING Test <i>A</i>	GEOGRAPHY Test <i>A</i>	HISTORY Test <i>B</i>	COMPOSITION Test <i>A</i>	

the teacher in charge of each laboratory. The teacher should guard against all temptation to require pupils to write out and hand in every step in their contract. Too much writing means that the child is not putting enough time on his studying. It becomes a burden to the pupil and defeats the chief advantage of the plan in taking away his self-reliance. The teacher should also recognise that written work is not a test of daily progress in lessons. It is rather an invitation to the pupil to sit down with his text-book and a piece of paper and transcribe notes to hand in later as he reads. It can become the emptiest of cramming processes. Miss Parkhurst's suggestion is a laboratory form graph from which the teacher can tell at any moment just how much of a contract each pupil has filled. A chart for each grade that is using the laboratory is hung on the wall. There are vertical columns for each week's assignment with subdivisions for each day. The children in a grade are listed in the left margin. Each pupil makes a horizontal line showing the amount he has accomplished, whenever he leaves the room. If the pupil is not sure what portion of the week's work he has done during his stay in the laboratory, he can consult the teacher. It is

usually not necessary to indicate on the week's posted assignment the amount that constitutes a day's work. Teachers and pupils divide a piece of work in the same way, and the child's instinct is to finish one of these divisions rather than to keep his mind on the amount to be done each day. It is a simple matter to indicate the amount of time that would normally be necessary for each portion for the first few weeks under the plan.

From this graph any teacher can see at a glance just how much each pupil has done on a contract in any particular subject. She can tell which children have reached about the same point in their work. She can call this group together for help and discussion and suggest that they finish the contract, or do a certain portion of it working together. The possibility of grouping children from a glance at the chart is one of the chief advantages of this type of record. With individual study, the teacher must take and make every opportunity to stimulate group work. This not only economises her time by allowing her to give help to a number of children at a time, but it enables the children to get the benefits of social studying and learning. The laboratory should not be a place

LABORATORY GRAPH
GEOGRAPHY THIRD CONTRACT

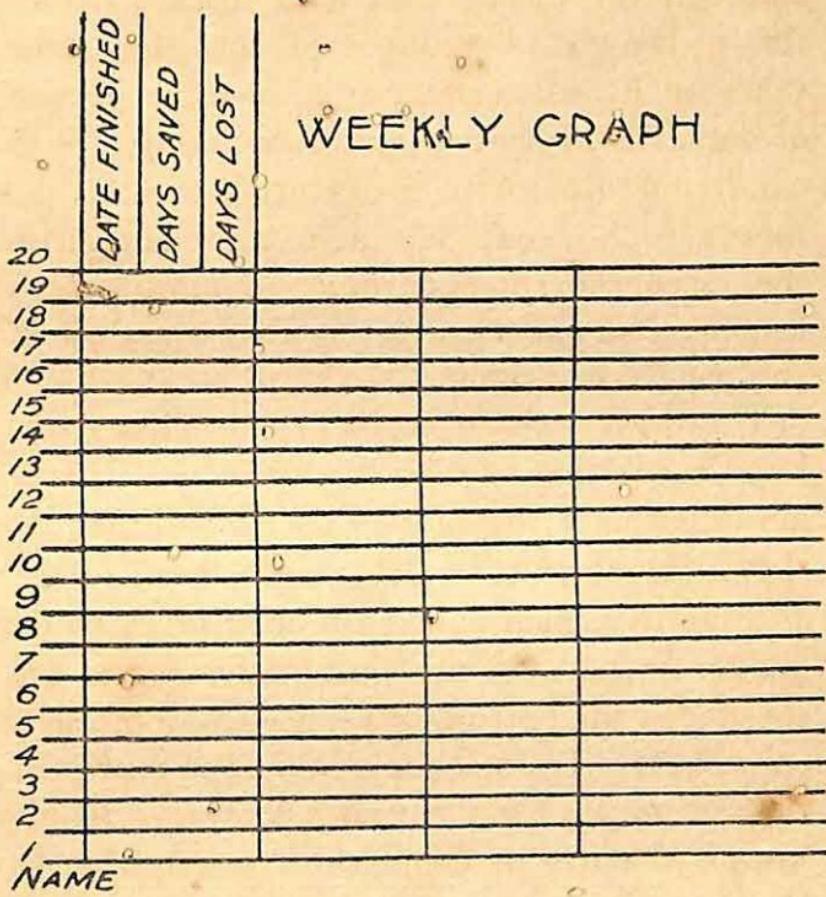
where children sit perfectly quiet. The teacher need not be afraid pupils will copy each other's work. The greater interest that comes from putting the responsibility for their own work on the children minimises this danger. Each child also develops his own way of working and arranging his material, the one best suited to his habits and ability, so that copying becomes a difficult matter. When it does go on, it can be as easily detected as it is under the conventional methods of home work assignment.

By watching the graph, the teacher can tell which children are ready to work together, and can take time to explain problems to those who are further behind with their contracts. It also enables her to give help where it is most needed instead of being monopolised by the most advanced children whose ambition to finish a contract makes them eager for help. It also removes the temptation to keep track of pupils by requiring endless written work, and the necessity of keeping notes and asking questions in order to know how the work is progressing. If a teacher is in doubt as to an individual's ability to judge his own work or his desire to do so honestly, she can require that pupil to speak to her before he marks his progress on the

graph. If the responsibility for learning is not put confidently and whole-heartedly on the children, the teacher not only loses many of the pedagogic advantages of the plan; she takes on herself an almost intolerable burden of detailed supervision and note-taking. With children and teachers co-operating to keep the room graph accurately and conscientiously, the teacher need undertake no more record keeping and paper correcting than she does in the usual class-room.

The third type of record kept in Miss Parkhurst's school is the laboratory score. This is also a teachers' record kept by the children. It shows the amount of time on the basis of the average that each child in a class takes to fill his contracts. On this graph, the names are entered at the bottom of vertical columns on a large sheet. Twenty horizontal rows represent the twenty days' work in each contract. As his work is accepted by the teacher, the pupil marks his progress in the assignment by drawing a vertical line covering the portion he has done, just as he does on the laboratory graph. If he works several hours in one morning and does the entire week's assignment to the teacher's satisfaction, he draws a line through the first

WEEKLY GRAPH



five squares in his column. If he completes his contract in the first fifteen days of the school month, his line will have mounted to the top of his column. Here each column is divided into three spaces, one for the number of days required for the contract, one for the number of days saved, and one for the number of days lost. The pupil then marks 15 in the first space and 5 in the second. If he had not finished until the third day of the next month, he would put 23 in the first space and 3 in the third.

At the end of the month, the teacher is able to tell just how much time each pupil has saved or lost on that contract. Since this chart is not marked without her permission, she can judge her assignments from it, whether they are too hard or too easy for the class and just which children got ahead or fell behind. By comparing graphs from month to month, she can watch the progress of each pupil in his ability to plan his work and economise his time. The space for recording time saved serves as stimulus to children to work and arrange their time to the best advantage. It also shows them their rate of work, so that by comparing their records on the graphs for different subjects they can see where they can save time for their slow



subjects. Since pupils are not ordinarily allowed to go ahead until they have finished their contracts in all their subjects, there is no danger of the charts encouraging poor or too rapid work, and for the same reason it does not promote any undesirable rivalry. From a comparison of the charts for different subjects, the teachers get an objective picture of the rate of work of each pupil. They can tell which children should be stimulated to undertake supplementary readings or extra topics, and which children habitually have slow mental processes and so should be spared unnecessary detail and helped to get control of the minimum fundamentals of their studies.

The chart also furnishes a convenient machinery for caring for the occasional pupil who for some external reasons is behind other children of his age in one or more of his subjects. As long as he does not fall behind in the subjects he is studying with his class, the rule against starting a new contract before all the old assignments are finished can be set aside. If he is a year behind in arithmetic, he can be encouraged to work hard and put in the time he saves on other contracts in the arithmetic laboratory. As soon as he finishes a contract in

arithmetic, he should start on the next month's work. From the laboratory score, he can keep track of the number of days he saves, and measure his progress in overtaking the rest of his class.

Two questions that naturally occur to the experienced teacher in studying the plan with a view to adopting it are the methods for checking the acquisition of subject-matter and for preserving group work and social interaction. It probably would not be wise to attempt the plan with the usual curriculum for children under ten years old. By that time, the average pupil has acquired a working knowledge of the tools of learning, reading, writing and the four fundamental processes of arithmetic. Progress in reading comes easily with the pupils' maturing interest. As they move from simple text-books and childish literature to those with more complex language, their skill increases automatically, if they have formed correct reading habits in the beginning. This natural progress can easily be tested by the use of the standard reading scales in term examinations. These scales have the advantages of showing a child's skill in comparison with the standard for his age all over the country and also of diagnosing

the difficulty that is retarding a poor reader. For the majority of the class who progress normally, there is a gain in time and subject-matter in eliminating mechanical drill, and letting this progress come from the reading that is done for geography, history or English. The poor reader's difficulty is detected by the test, and under the plan, the machinery already exists for giving him the individual attention and drill necessary to overcome it. Granted a good start in the mechanics of writing, there is economy of time and greater interest in skill if writing lessons are not continued in the upper grades. High standards should be held before the children, and opportunities given them to check their performances with the standards for their age. They should be required to write legibly and quickly and prevented as far as possible from forming two hand-writings, one for notes and one for the teacher. This can be done by discouraging copying. Experimentation has shown this to be a more successful way to teach writing than penmanship drills.

Investigation has proved that the best way to teach spelling is by repeated practice in words that are misspelled. This means individual study. The standard spelling lists and tests

give the teacher the machinery for introducing this method in a form that is scientific and has been successfully used in many schools. We have already seen that arithmetic is particularly well suited to the free study plan. The standard tests enable the teacher to measure the individual's progress and to detect his weaknesses. On the basis of their results, the teacher can assign individual drill in number combinations that have not become automatic. Such methods as graphs for spelling or multiplication combinations, word books and book cards made by each child to keep track of his progress in the mechanics of learning have proved successful. All these methods will require individual initiative in the pupil, and assignments and instruction from the teacher, and are therefore well adapted to the laboratory plan. These standard measurements do not fix the mathematics or reading curriculum of the school. They are a device for getting an accurate measure of each individual's control of the tools of learning: the mechanical skills that enable him to assimilate subject-matter.

Checks on the acquisition of subject-matter in the rest of the curriculum should be worked out by each teacher on the basis of her method and

the course of study. Schools where the plan is used have determined certain principles which should be followed. If the social features of the plan are not kept in mind, the laboratory method can degenerate into a speed device. Miss Parkhurst's purpose was never to arrange a school where the average pupil by isolated and continuous attention to detailed lesson sheets should be able to get through a fixed curriculum in a minimum of time. Instead, she wished a plan that would set up a socialised community where real conditions for work prevail. The freeing process for the individual is as essential as is learning to read or write. Therefore, the teacher should never resort to the device of having children work on lesson sheets or follow directions that are explicit in minute detail. Her position as consulting expert in the laboratory gives her an opportunity to become familiar with the mental traits and habits of work of each of her children. She cannot be fooled about the grade of work any child is doing. The ordinary term or monthly tests enable her to check her grasp of facts and details.

Pupils should be free to move about, choose their own seats, form groups, talk, use apparatus and materials; do anything they deem

necessary for the best completion of their contract as long as it does not interfere with the others working in the room. Children can learn, as adults learn, by working in a real laboratory, by checking their ideas and progress against their companions', by talking over difficult points, by going to the dictionary or map immediately, by comparing and combining the opinions in their group, and by being free to work alone when and as they need to. This type of study develops, by requiring accurate work, perseverance, critical judgment and initiative. Where children are interested, their judgment is sound. They reject the trivial; shut out of their groups the mental hangers-on and the lazy; and, because they are working with their peers, stimulate each other to greater efforts. Setting up conditions for this kind of work helps the children to get the kind of social training they need. By working freely with others, they learn to adjust themselves to their environment. The teacher can organise the group work by having the children who have reached the same point in their assignment report to her for help and discussion as a group, and by giving special topics to small groups for research and reports to the class.

Class meetings should be reorganised under the plan as periods for discussion and group projects instead of recitations. The teacher's knowledge of her pupils' general attainments comes from her intimate contact during the free study time. Her knowledge of their grasp of facts comes through periodic tests and examinations. The class hour is not needed to find out whether last night's lessons have been studied, but it is needed to give a general explanation of the month's or week's assignment, to point out difficulties and put facts in their proper proportion, to give pupils a chance to express themselves before the group. A teacher can easily develop a general routine for these meetings according to the number which occur each week. If she has three recitations, one can be devoted to a lecture, one to students' reports, and one to written work or supervision of group projects. If she has only two, both can be spent in discussion and planning with the children. The monthly tests will probably be given a class time. If there is only one class meeting a week, the important points and difficulties of the assignment should be thought out ahead of time, and the period carefully planned to bring out the continuity of the work. In every school

we find an assembly, athletics and dramatics, class meetings and entertainments. The educational value of these activities should be recognised. They should be, as far as possible, incorporated in the regular curriculum. In adult life, art and recreation are the chief mediums of social intercourse. Why should this not be so in the school? They can be organised so as to develop standards of taste, appreciation and social poise. In assembly, pupils can tell their comrades about interesting assignments or pieces of work they have done. They can use the art principles they have learned for making stage settings, and their music for giving pleasure to the rest of the school. The assembly can become the social and intellectual centre of the whole school, where standards are set and school spirit developed. Student activities can be organised on a self-government basis with teachers acting as advisors. All these things should be done by the pupils in the same way that they do daily lessons. Through them, the school can give practice in all sorts of necessary social qualities, and training for citizenship and democracy.

CHAPTER III

THE ASSIGNMENTS

TEACHERS have always recognised the importance of dividing the courses of study into suitable assignments. The pupil's understanding of the general thread of the subject depends upon the skill used in making these sub-divisions. But in practice, the connection between this and the learning process has not been sufficiently emphasised. In the average recitation or oral lesson, the assignment is left until the end of the period, and is hurriedly given as a number of pages or problems the pupil must find time to study before the next lesson. Little time is spent in giving the class a general outline of the subject or explanation of the values they are supposed to get from it. They are plunged immediately into the details of facts, dates or figures. They are too often left to build up for themselves the general interpretation of this material after the course is finished. Modern psychology has shown that the mind,

does not naturally work in this way. An idea, a general conception comes first. Afterwards, it is analysed into the separate data that substantiate the general truth. The conventional method of presenting school subjects by induction persists in the face of this psychological discovery. This is enough to account for the failure of public school graduates to apply what they have learned in school to their lives after they have left.

Through the monthly contracts, the Dalton Laboratory Plan provides for the natural, the deductive method of presenting subject matter. The assignment for the month gives the general idea. The weekly sub-divisions give the references that enable the pupil to gather the data that build up this central idea.

Another discovery of modern psychology is the impossibility of effort without interest. Details in themselves are uninteresting, but as steps in the analysis of a stated problem, they take on meaning and interest. If the task itself is not interesting, the will to do must be enlisted by some trick or device. Because the old-fashioned classification of subject-matter did not correspond to the workings of the mind, it failed to be interesting or of itself to

enlist effort. The rewards and punishments involved in the system of examinations, marks, promotions and prizes were relied on to stimulate the necessary effort.

The monthly assignment in stating one general idea does much to put a school subject in interesting form and so on its own face value to arouse the pupil's effort. In making an assignment the pupil's interests can be taken into consideration. All children want to know. The assignment tells them something they may know and they are eager to learn.

The whole contract consists of a number of assignments, each having to do with special phases of a general topic. Any one assignment should not be a formal statement of the number of pages to be read in specified text and reference books. It should, instead, be in the nature of a syllabus stated in an interesting way. It points out the central idea, the ground to be covered, difficult points to be noted and kept in mind, questions to be answered, and last, specific lessons in the way of written or oral work to be done. The teacher conceives the assignment as a plan made for the pupil to use in attacking the subject, instead of the usual outline for her to follow in conducting recitations.

In preparing these assignments, she attempts to get at the solution of subject difficulties from the standpoint of the learner. The problem is set up. The pupil has his subject laboratory in which to work out his solution. He must, therefore, be informed of the difficulties he will meet and told what the teacher expects of him. The teacher gives the inspiration by stating the requirements so as to arouse the learner's curiosity, and by devising ways to facilitate his attack. The use of thought-provoking questions is helpful in accomplishing this.

Where a teacher is reorganising her subject without making any change in her usual course of study, she must keep two points in mind in blocking out her assignments. First, she should keep rather closely to the monthly basis. The course of study should be divided into a number of equal parts corresponding to the number of months in the school calendar allotted to it. This is necessary in order to enable the student to check his own progress and plan his time in each course in relation to all his other courses. That is, if assignments are made simply on the basis of topic division of the subject, one problem may require two weeks and the next six. Even when this is clearly indicated, the result

would be confusion for the pupil where the spirit of the plan, putting the responsibility on the child, is followed. A child would have a number of contracts, one for each subject, and each might require a different time for its completion. If he is to finish each in the various time limits, he would no longer be free to plan his time according to his interests, staying in one laboratory a whole morning when he became absorbed; nor would he be able to use his past experience in planning his next contracts. Instead, the tendency would be to reduce the assignments to a daily basis, and to rely on the teacher for direction in the distribution of his time.

Besides the loss of training for the pupil, irregular assignments would complicate administration problems for the teachers. The laboratory score that enables teachers to get together and measure the progress and rate of study of each pupil would become meaningless, because each assignment and each subject would be measured in different units. Difficulties in making individual adjustments would also be greatly increased. The two occasions for this are, usually, for the child who is behind in some subjects and advanced in others, and

the one who through no mental handicap is behind his grade for his age. For both these cases, it is desirable to set aside the rule that no new assignments can be started until all the previous month's work is completed, and to encourage the child to save as much time as possible, starting new contracts in some or all his subjects as soon as the old one is done to the teacher's satisfaction. Unless all contracts and all subjects are divided on an equal time basis, such cases would cause confusion. Teachers would have to spend endless time in consultation and planning in order to prevent very uneven subject progress. Therefore, it is desirable to have a uniform time unit for contracts. But in dividing the course of study into months of work, the necessity of having each contract an intellectual whole must never be sacrificed. Each contract should always be built up around a central idea. In a subject like Latin, where the class is reading Cæsar, one problem may require the better part of the year for completion. Here, contracts are like mile posts. They mark progress in a task where patience and continuity are essential and each post is much like the last. The first assignment in the fall should devote some time to the historical setting for the

Commentary, the reasons for studying it, its interest and value to the pupils, and types of new problems that must be met. After this, the contracts for several months may properly follow each other with little more differentiation than the class progress in reading. This applies to all subjects that are conventionally accepted as drill. Even here, there is always an historical background, new rules, or special pieces of research and reports that can be planned as units and to give greater content to the work.

Other subjects, where the year's work requires the completion of a series of problems, should be divided on the basis of time and topic. In history, for example, a contract should not stop in the middle of the Wars of the Roses because under the conventional study plan a class would reach that point by the end of the third month. A different arrangement of the sub-topics in the problem should be made so that, say, the pupil's textual study and map-drawing is a unit, and his essay or supplementary reading can be made a week's unit in the following contract. The problem will not prove as difficult as it may appear if the teacher approaches it with the peda-

gogic advantages of her new opportunity in mind.

The following contracts were used in a small private school where the course of study is adapted to the class of children. The fifth grade was studying Greek history and the English class is advanced compared with the average eighth grade in a public school. At the same time, the assignments furnish concrete illustrations of the way a course of study can be adapted to the plan; the methods the teachers used to insure thorough study, enlist the children's interest and bring out the central topics. The contracts are portions taken from the complete course, and so, naturally, it is the thought of the specific point being studied that is brought out.

In judging the pupil's ability to accomplish these contracts, the reader should remember that the block of work has been discussed in a class meeting, and that all the studying will be done in the subject laboratory with the teacher at hand to give help and criticise results, and with a subject library and appropriate equipment always available.

GREEK HISTORY

Fifth Grade.

4th Contract.

First Week.

Last month we read how the Greeks fought against the Persians and drove them out of Greece. You remember the Battle of Marathon and the Battle of Salamis. After the Persian Wars were over, and the Persians had decided that they could not conquer the Greeks, the Greeks went back to their homes. You remember the Athenians had had their homes burned by the Persians just before the Battle of Salamis, so they had to start their city over again.

The Spartans were jealous of the Athenians, so they did everything they could to keep the Athenians from rebuilding their city. They were afraid that the Athenians would become the most important people in Greece. The Athenians, however, succeeded in getting their city rebuilt. They soon got into trouble with the Spartans, who were very jealous still. Finally, this trouble ended in a long and cruel war between the two cities. This is what we shall read about this week. Read the story called "Beginning of the Peloponnesian War" in *The Story of the Greeks*. This war was called

the Peloponnesian War because Sparta was in it, and Sparta was in the part of Greece called the Peloponnesus. When you have finished the reading, write out the answers to the following questions:

1. Who fought in the Peloponnesian War?
2. Why did the two countries fight?
3. How did Pericles explain the eclipse of the sun? (This is two days' work.)

We shall also read about the death of Pericles, the great leader of the Athenians. Write the answers to these questions when you have finished:

1. What caused the death of Pericles?
2. What was said about the way Pericles found the city and the way he left it? (This is one day's work.)

The third story to read this week is called "Greek Colonies in Italy." You will find the page by looking in the index. You will find out there about some of the Greek cities in Italy and Sicily. Look on the map in the front of the book and see where the cities are. You will be interested to see how the people in some of the cities loved comfort and luxury. You will also find out about how the Athenians planned a great expedition to attack some of the cities

in Sicily. Write the answers to the following questions:

1. Tell a story to show how the Sybarites liked comfort.
2. Who were the leaders of the Athenian fleet?
3. What was Alcibiades accused of? (This is two days' work.)

Be sure to bring all your written answers to me before you mark up your work.

Second Week.

This week let us follow the fortunes of the Athenian leader, Alcibiades. He was the best one to lead the expedition, and without him the fleet and army did not do much. Very few of the men who started out with the fleet ever reached home again. Let us read the story called "Alcibiades in Disgrace" and the story called "The Death of Alcibiades" in *The Story of the Greeks*.

When you have finished the reading and think you know about Alcibiades, write out answers to the following questions:

1. Tell how Alcibiades changed sides.
2. Why did he change?
3. How many times did he change?

4. Tell about the death of Alcibiades.
5. How did the Peloponnesian War end?
6. Who won?

Be sure to bring all your written answers to me before you mark up your work.

Third Week.

I wonder how many of you have ever heard of the Greek philosopher, Socrates. I wonder how many of you know what a philosopher is, anyway. See if you can find out from your reading this week. This week we shall read about the philosopher Socrates in a chapter from the *Story of the Greeks*. We shall also read two other stories about this same man, one called "The Accusation of Socrates" and the other called "The Death of Socrates." When you have read all about him, write the answers to the following questions:

(About the Philosopher Socrates.)

1. What is a philosopher?
2. What did Socrates believe?
3. Tell about Socrates and Xanthippe.

(About the Accusation of Socrates.)

4. How did the Athenians come to think badly of Socrates?

(About the Death of Socrates.)

5. What became of Socrates?

Be sure to bring all your written answers to me before you mark up your card.

Fourth Week.

We have been reading about the wars that the cities in Greece carried on among themselves, and we have seen how the Spartans defeated the Athenians in the great Peloponnesian War. Some of the Greeks were still anxious to fight, so when a war broke out between two brothers who were trying to become King of Persia, a large force of Greeks went to help the younger brother, Cyrus. This week we shall read about the adventures of the Greeks in Asia. The story to read is in *The Story of the Greeks*, and is called "The Defeat of Cyrus." Then there is another story that comes right after that one, called "The Retreat of the Ten Thousand." Let us read that also. Then we shall write answers to these questions:

1. Whom was Cyrus fighting against?
2. Who helped him?
3. What happened to the Greek officers after the defeat?

4. What did the Ten Thousand do?
5. Who led them?
6. Where did they go? (This work will be equivalent to three days' work.)

We must go on now and see what came of the help that the Greeks gave to the Persian Cyrus. Artaxerxes, the brother who won out, was naturally angry at the Greeks for helping his brother, and so war broke out between the Greeks in Asia Minor and the Persians. Let us read about the Spartan King, Agesilaus, and his battles with the Persians. There are two stories, one called "Agesilaus in Asia" and the other called "A Strange Interview." When you have finished the reading, answer these questions:

1. What city was Agesilaus king of?
2. What kind of looking man was he?
3. When he met Pharnabazus what did Pharnabazus find him doing?
4. What did Pharnabazus do when he saw the simplicity of Agesilaus?

Show me your answers before you mark up your card.

AMERICAN HISTORY

Seventh Grade.

4th Contract.

First Week.

This week there will be two topics to read and study about. The first topic is "A Wonderful Invention." This invention was made while Washington was President, and was a very important one to industry in the United States. Let us read about it in one of these two books: *The Story of the Great Republic*, or *Some Successful Americans*, page 147 and following. When you have finished reading, write out full answers to the following questions:

1. What was this invention?
2. Who was the inventor?
3. When was it invented?
4. Why was this invention so important?

The second topic is: "The United States Buys Land." You will find out about this topic in *The Story of the Great Republic*. When you have read the story, write the answers to the following questions:

1. Who sold this land to the United States?
2. How much did we pay for it?
3. What President bought it?
4. Who explored this land?

5. What river in the West did they go down?
6. Who went to find the source of the Mississippi?
7. What happened to him?
8. What did John Jacob Astor do?
9. Draw a map of the Louisiana Purchase.
(You will find a map to copy on page 210 of Muzzey's *American History*.)

Second Week.

While Thomas Jefferson was President we had a great deal of difficulty with pirates. Our first topic this week will be about that trouble. Read *The Story of the Great Republic*, pages 61-68, and then write the answers to the following questions:

1. Why did we fight pirates?
2. What did the Dey order Bainbridge to do?
3. Tell about Bainbridge and the "Philadelphia."
4. Tell about the burning of the "Philadelphia."
5. Tell about Richard Somers' brave deed.
6. What was the result of the fighting with Tripoli?

The second topic for this week is: "The First Steamboat." Probably you know a good

deal about it, and that it was first made and run on the Hudson River. Read "The First Steamboat" in *The Story of the Great Republic*, and write the answers to these questions:

1. Tell the story of Aaron Burr.
2. Who invented the steamboat?
3. When was it invented?
4. Where did it run?
5. How has the steamboat developed since then?

Third Week.

Our topics of study this week are all about the "War of 1812," our second war with Great Britain. England insisted that she had the right to stop any American vessels at any time and search them for English sailors that might be aboard. The Americans would not stand for any such procedure, and after much disputing we finally declared war on Great Britain in 1812. Our first topic is called "The War of 1812," and is found in *The Story of the Great Republic*. Write the answers to these questions, and show them to me before you mark up your cards. This should always be done.

1. Tell about the fighting around Detroit.
2. Who were the American generals at Detroit?

3. Tell about the "Constitution" and the "Guerriere."
4. Who was the captain of the "Constitution."

The second topic is: "Don't give up the Ship," found in *The Story of the Great Republic*. Answer these questions:

1. Who said these words, "Don't give up the ship"?
2. What American leader took the words for his motto?
3. In what battle?
4. Tell the story of the battle.
5. What was the "American Army of Two"? Tell the story.

The third topic is "The Star Spangled Banner." Read about this in *The Story of the Great Republic*. Here are the questions about it:

1. Who wrote it? Where was he?
2. What were the British trying to do?
3. Who won the last battle of the war?
Where was it?
4. What was the result of the war?

Fourth Week.

We shall have two topics this last week. The first one is "Clinton's 'Big Ditch.'"

Read in *The Story of the Great Republic* about it, and then answer these questions:

1. What was the "Big Ditch"?
2. Who was Clinton?
3. Where did the ditch run?
4. What good was it and what good is it?

Our other topic this week is "The First Railroad." The first real railroad in this country was the New York Central. I am going to refer you to a small pamphlet published by this railroad some years ago. I think you will find it interesting, not only the reading but also the pictures. Read it all, and when you have finished come to me and talk over with me what you have learned about this railroad.

LITERATURE

Eighth Grade. 4th Contract.

This month we shall read a book by Kipling, *Captains Courageous*. It is an exciting story of the life of the brave fishermen on the Grand Banks of Newfoundland. I am sure you will like it. I am sure you will like Harvey and Dan and all the others. When you get through reading the story, instead of writing a book

report on it, write short stories on the following subjects:

1. Suppose you were a reporter on the *Gloucester Daily Herald*. You hear about the adventure of Harvey and Dan with the dead Frenchman. Write this story up as an account for a newspaper. Be sure to make it interesting, for that is the most important thing about a newspaper story.
2. Suppose you were Harvey on board the "We're Here" after he had been there a month. Write a letter home to your mother, telling your experiences during that time. Tell her just how you feel, imagining all the time that you are Harvey. I think you can easily imagine his feelings as he writes.

*Bring the stories to me after you have done them,
and I will correct and approve them.*

LITERATURE

Eighth Grade.

5th Contract.

Our reading this month will be *Rob Roy*, by Sir Walter Scott. The reading will count as three weeks' work.

The fourth week's work will be to write a



book review of *Rob Roy*. This is different from the book reports you have written before. This review is the kind of thing you find in the *Literary Digest*. The purpose of these reviews is to enable people to tell by reading the reviews whether or not they wish to read the book. These are the things that should go into a book review:

1. Put down the full title and the name of the author.
2. Put down the name of the publisher and the number of pages in the book, so that the reader will know where to get it and how big the book is.
3. Give a short account of the story, putting in only the important facts.
4. Tell what you think of the book. Tell whether you liked it or not, and why.

Bring your review to me when you have finished.

CHAPTER IV

A DALTON HIGH SCHOOL

MISS PARKHURST's organisation plan was first tried in a secondary school, in the town high school in Dalton, Massachusetts. Before that, it had been tried in an ungraded school and also in a State graded school for a test period. The Dalton High School had preserved the classical traditions of the New England academies. The town is a mill centre. The result was a serious lack of adjustment between the lives of the pupils and the school curriculum. There was no reason why most of the young people could not go to high school when they finished the grammar school, if they realised the need for more education. The high school curriculum, devoted as it was to college preparation under arbitrary conditions, did little to make them see this need.

Mr. Jackman, the school principal, realised the situation. Because of New England conditions and a conservative school board, he was unable

to make the town feel that a high school was a stepping-stone to real vocational education in colleges and special schools. Young people in a factory town quite naturally will not spend four years in preparation for training when that preparation is wholly classical. Every year the freshman class was large, but only a handful of pupils from the more well-to-do and ambitious families graduated.

The principal believed that education, not mere college preparation, is the proper function of a public school. He was unable to change his curriculum, but he saw in Miss Parkhurst's plan an opportunity to reorganise on a basis that would enormously increase the educational value of his courses. He gained the permission of the school authorities to try the plan for part of the school day. A number of school meetings were held to explain the plan to parents and pupils. Finally, the conservative village promised a rather half-hearted co-operation. The community was frankly suspicious. They accepted the conventional school as a tradition. Its workings had never been questioned nor its results examined. The business of the persuasion and explanation dragged through the summer and fall of 1919. The date for

beginning the experiment had to be postponed until the opening of the second half of the school year.

The adoption of the plan was so uncertain that very little had been done in the way of making detailed plans for the change. Miss Parkhurst prepared a circular setting forth the plan in briefest outline. The portions dealing with the general purposes of the re-organisation are given here as they contain a statement of the educational possibilities of the plan in a high school where there is no attempt to alter curriculum.

THE "LABORATORY SCHOOL" PLAN

NOTE: "Laboratory," as here applied, designates academic workshops where boys and girls discover their native faculties and needs through real experiences relating to the world they live in and where they acquire a thorough knowledge of the academic essential as a minimum.

The plan has to do with a simple and economic reorganisation of the high school, whereby pupils and teachers function to better advantage; by it, inefficiency in pupils and

teachers is reduced to a minimum. It does not add to or change the curriculum; it does not depend upon expensive school plants or elaborate equipment; it precludes the idea that there is any one method of teaching subjects, and approaches the matter from the standpoint of the boy and girl problem. It provides equal opportunities for advancement to bright and slow pupils alike, without sacrificing thoroughness; it does away with programme conflicts and will go far towards doing away with "repeaters."

The plan will change and grow with the discoveries of the faculty and will contribute much to educational advancement.

IMPORTANCE: A. An experiment which will set for itself the solution of High School problems, and thereby lay a foundation for a useful citizenship.

B. In its demonstration it must be actuated by sound principles of education, putting the emphasis upon character development as a requisite for citizenship, rather than upon academic accomplishment.

C. An experiment which will serve as a sociological laboratory for human development,

i.e., where the needs of boys and girls will be studied, rather than a place where the foregone conclusions of a group are applied to the boys and girls; a place where the experiences of boys and girls, in a carefully prepared environment, will permit them to arrive freely at conclusions; to bring about self-realisation in the boys and girls.

SCOPE OF WORK: A school consisting of a group of academic laboratories for each subject taught in High School.

HOURS: The school day will be from 8.40 a.m. to 3.15 p.m., including luncheon period; the time from 8.40 a.m. to 11.50 a.m. being devoted to free academic laboratory work, and the time from 1.15 p.m. to 3.15 p.m. being devoted to regular classes.

AIM OF THE WORK: To have the pupils individually graded in ungraded groups in their progress through a graded curriculum; to teach the children to study; to create conditions favourable to arousing the initiative, interest and personal motives of the pupils; to create conditions in the curriculum and administration which shall make possible the desire to learn under the impulses of self-initiative; to permit

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the individual pupil to progress through his chosen graded curriculum as rapidly as his mental ability allows; to permit pupils to work uninterrupted in the completion of the task in order that they may have a proper valuation of time; to develop a sense of personal responsibility towards their education; to consider the laboratory head as a guide and helper rather than as an instructor or driver; to gain in power to survey a subject; to cultivate a desire to be well-informed and intelligent, rather than to attain a passing mark; to regard education as a pleasure and as a necessary adjunct to advancement.

PLAN OF ASSIGNMENT AND WORK: The school year consists of ten months. The curriculum is graded into Freshman, Sophomore, Junior and Senior requirements. A year's assignment in any one subject covering the work of any one class is divided into ten portions of work. When the pupils enter school, they are given curriculum cards corresponding to their rating in the school. The curriculum cards for each class are of a different colour, and on them are printed the first month's assignments in the four fundamental subjects carried. For instance,

a Freshman holds a blue card on which he finds assignments in Mathematics, English, History, etc.; a Sophomore holds a yellow card, etc. In order that the card may not be too cumbersome, the assignments are general and relate to more detailed assignments exhibited in each subject laboratory. Each detailed assignment is subdivided into four weeks.

The time from 8.40 to 11.50 is at the disposition of each student. Each has a curriculum card giving assignments of work which can be covered in a school month of twenty days. This monthly assignment is divided into weeks, but the boys and girls have the entire responsibility of dividing the weekly assignments into days. The pupil may either concentrate upon one subject, complete the month's assignment in that subject and take a test, or he may study each subject a short time each day and take all of his examinations at one time. Each pupil must complete the requirements of the first month on the first card, before receiving the second card of assignments in his graded curriculum, *i.e.*, the exception to this rule will be made at the discretion of the faculty for the good of individuals under consideration.

On a card especially designed for the purpose,

each pupil makes a graph of his daily progress, showing the amount of work covered in each subject during the twenty-day period, *i.e.*, the school month. The plan, as tested to date, shows that the children are much interested in their progress, and that they elect to begin with the most difficult subjects rather than the easier ones; that when left to dispose of their own time they accomplish more because they advance at their own individual rate of progress; that the children are keenly interested in the progress of their companions and have much in common to discuss; that the twenty-day assignment is often covered in fifteen days; and sometimes in ten days, giving more time for research.

On this basis, the teachers started the plan. Half the year's work had already been done. The teachers of each department made out in general terms a schedule of their courses for the remainder of the year. This was divided into five portions, each representing the standard amount to be done in one month. The record cards and graphs used were those described above, altered to fit the particular subjects studied in the school. The afternoon session had a fixed programme. The pupils

met their teachers in regular class periods. There were, naturally, fewer recitations a week in each subject than when the whole day is devoted to classes. This made some alteration in the conduct of recitations necessary. But no set way of solving the problem was suggested. Each teacher was free to make the adjustment that seemed to her the best to meet the requirements of her subject-matter. The teacher's function in the free study time is five-fold: (1) to preserve an atmosphere of study in the room; (2) to explain any detail of the assignment; (3) to give information in regard to the use of departmental equipment; (4) to give suggestions in regard to methods of attacking particular problems; and (5) when the need actually arises, to give full explanation of a point and of its relation to the general principle of the subject.

Presence in school was attested by means of a time sheet posted near the school entrance. On this sheet the student checked up his advent, and, if late, inserted in a special column the time of his arrival. He was responsible to his group advisor for explanation of either absence or tardiness. The general honesty in the use of this time sheet is an extremely encouraging feature of the work.

Few changes were made in the arrangement of the school building. The library books were distributed to the appropriate laboratories so as to be within reach at any time during the free study. The history room was already furnished with tables and chairs, but otherwise the building is equipped with the usual screwed-down desks. A freer arrangement of furniture is undoubtedly desirable under the plan, because of the necessity of encouraging the formation of informal groups during study time. But the Dalton High School has shown that where such alterations are not feasible, the plan can work satisfactorily under formal conditions. Two or three pupils can group themselves around one desk or a few extra chairs can be placed in each room, so that pupils can retire to a corner for a quiet conference.

The next year, 1920-21, owing largely to prejudice, the free study time has been confined to the first two hours in the morning. The rest of the day was organised on the usual recitation basis. But the plan of posting assignments by the month and week continued, and pupils were permitted to portion their study time quite freely, progressing as they choose in the different subjects within the limits of the month's contract.

This apparently slight change in the school programme effected a complete reorganisation in the school as far as spirit, attitude and habits of study were concerned.

In one year, under the new plan, the student body has learned the lesson it never got from the old school—that High School is a preparation for vocational training. Every member of the graduating class made plans to go to a higher school. Under the old plan few pupils went. Mr. Jackman believes that this is because the free study plan makes the school life an active, not a passive, affair. Children are no longer dragged and pushed through an uninteresting four years. They have to get their lessons on their own initiatives. This means that they are more interested, plan their time to better advantage, waste less time, and remember what they learn better because the contract gives continuity to the daily lessons. The pupils become partners in the business of preparation for college. As partners, they have a new sense of the importance of the venture and its value. Such gains in habits and attitudes are none the less valuable because they are somewhat intangible and incapable of statement in objective or quantitative terms.

It is through practice in using character qualities of responsibility, initiative and judgment that sound people and good citizens develop.

Mr. Jackman has stated the disadvantages and advantages of the plan, as he saw them at the end of the first half year's trial, in conservative and judicial terms that will ring true to the ears of every teacher.¹ "We started with a compromise. Unfortunately, this broad, natural and altogether ingenious scheme could not be carried into effect completely.

"The forenoon only was devoted to the individual work described. In the original plan proposed by Miss Parkhurst, group consciousness and creativeness were to be attained through the organisation of special groups, the interests of which were to be developed through investigation of special phases of a subject. For instance, in relation to English, debate, public speaking, dramatics, and literary discussions were proposed; for history, discussions of political questions of the day, of the art of some particular period and its meaning as related to the life of that era; for science, practical demonstrations of peculiar phenomena

¹ Jackman, E. D., "The Dalton Plan." *The School Review*, Vol. XXVIII., Nov. 1920, pp. 688 ff.

or of home-made scientific apparatus; for Latin, reports on translated works, Roman government, or the nature of Latin life as revealed in Pompeian excavations; for French, comparison of Parisian French with phrases of the Canadian dialects, or the bringing of some person to the group who could tell of France as he saw it. Cut-and-dried recitations were altogether to be dispensed with as being forced and artificial.

"It was believed by the state inspector of secondary schools, to whom the matter was referred, that a serious loss of systematic drill would result from the omission of the conventional recitation. Afternoon schedules of recitations were put into operation—recitations based upon the indicated median of class progress—and an earnest effort was made by the teachers to hold the interest of a group of students divided by varying rates of progress to lessons drawn from class text-books. The results of this attempt to weld together two inharmonious systems were not altogether encouraging. Where some good results were obtained, they followed methods similar to those of Miss Parkhurst's original plan. English, history, and science, as well as mathematics, drifted into conditions of promise.

Language study, especially French, began to give trouble. This was partly remedied by giving up a part of the precious forenoon time to drill and memory work. At the end of the year, students were being encouraged to choose the group appropriate to their progress, and intelligent use of this principle of choice did much to solve difficulties. It seems to be true, however, that, even though drill and memory work may be necessary and may avert future disaster from the student preparing for college, the souls of Rome and of France are just as far away, perhaps farther away, because of persistent absorption of the energies of students and teachers of foreign languages.

"We are forced to admit that in this school, at least, and probably in many others, the forced and unnatural method of teaching modern language—giving instruction solely to prepare for college—is mischievous in the extreme. Had it been possible suddenly to reform in this respect, making the right atmosphere for the language, and letting it develop like a natural organism, Miss Parkhurst's system would have fitted the subject, as a good glove fits the hand. The conclusion deduced from observation is that not the plan, but the con-

ditions under which we were trying to use the plan were at fault. This conclusion is highly encouraging, for the instructors know what must be striven for in the future. Modern language, like any other subject, presents no insuperable difficulty. More than that, the subject, properly approached, would perhaps benefit to an unusual extent.

"No special training was given the teachers in preparation for the change. The plan was under consideration for some months previous to its adoption, and they had ample opportunity to comprehend its principles. It is true that they made some mistakes, that of overloading the monthly assignment with details being perhaps the most serious. All report a new vision of education and a desire for further progress in the same line.

"Our observations and collected data lead to interesting conclusions in regard to the students of low intellect as well as to results with pupils of high intelligence. In regard to the former, the majority showed profit in thoroughness and inspiration. The facts that the entering class was not intellectually as strong as usual and that the proportion of absolute failure was considerably decreased seem to speak well

for results. It is, of course, true that the system increases the difficulty of adjustment for entering pupils, coming as they do from elementary schools conducted under the conventional system. Some of the higher pupils, notably girls accustomed to attainment of rank through the exercise of memory alone, suffered a reduction of inspiration and apparent progress. Time brought to many of them readjustment and some understanding of values hitherto unknown, and though, in some cases, the lost ground was recovered slowly, their increased self-reliance and initiative seemed full compensation. A larger proportion of boys of all grades of intellect than of girls received immediate benefit. This may be due to the greater general experience of the average boy in exercising his creative faculties.

"The advantages of the system are fairly evident. Unusually able students need no longer be held back to fulfil the necessities of a rigid schedule. Students of rather low ability will be able to go on without the Damoclean threat of withheld credit, and will be able also to reap full benefit of the instructor's assistance and inspiration. Repeaters—that bugbear of the programme-devising principal—need no longer

exist. There need be no turning back except for proper reviews, and the self-conscious, dull student is not forced periodically to regard himself as an intellectual failure.

"The problem of general discipline appears to be solved. Even in the earliest weeks of our work under the plan, the atmosphere of order and quiet industry was truly remarkable. Under the conventional hide-and-seek relations between teacher and pupil, a single instance of disorder was likely to spread like contagion throughout the school. Under our plan, an attempt at disorder was bitterly resented by most of the pupils affected by it and influenced no one beyond the immediate scene. The close contact in departmental rooms between teacher and pupil deepened the sympathetic insight of both and largely prevented that friction between individuals which so often blights the fondest hopes of the educational theorist in the concrete application of his ideas.

"Since, under this plan, all teaching is done strictly by departments, no teacher finds himself obliged to force an interest in a subject to which he is really indifferent in order that the subject may be provided in the school curriculum. This fact, coupled with the elimination

of friction between teacher and pupil, means that the nervous strain so destructive to the health and abilities of the average instructor is eliminated.

"Under this plan, the pupil slowly but surely acquires the point of view of the great industrial leaders in regard to time. No longer is the period of youth a fund of time to be squandered on useless diversions. He gradually gets the idea that his time is his capital, to be spent, indeed, but to be spent systematically and judiciously. His education becomes his vocation. He catches his first full vision of responsibility, and, stimulated by the knowledge of powers recently discovered, he learns not to shirk the responsibility. He learns that a ranking system at best is an extremely poor measure of education, that the true measure lies in the increase of his own consciousness of power.

"The teachers of French and Latin felt that some gain in self-dependence had been made, though they were not at all sure that the subject had been better mastered. The teachers of mathematics, English, history, and science reported not only an advance in rank, but a broader grasp of fundamental principles, a more practical attitude towards the subject,

as well as a sturdier independence of mind."

An analysis of the teachers' grades for daily work and examinations indicates that there was no loss in scholastic attainment under the plan. There is no break in the marks that would suggest a change of conditions had taken place in the school. There is not even any noticeable falling off for the first month under the plan to indicate a difficult period of readjustment. Slight, insignificant fluctuations occur in individuals' marks for the two semesters, but there are no greater differences than would ordinarily occur by chance, and even the slight variation is not uniformly higher or lower under the plan. There is one exception to this—the marks for mathematics, which indicated a small, but uniform gain after the plan was introduced.

The description of the school at the end of the first months under the Dalton Plan suggests the kind of problems that must be met, and the way this high school has approached them. There is a real difference in the way the plan operates for different subjects. Mathematics and science fit into the new programme with minimum readjustment of methods on the part of the teacher. Necessary explanation of principles

can easily be given in one or two class periods a week, and students are distinctly the gainers from having all the rest of their time free to handle concrete material. The pupil's success in solving problems and with his experiments gives an adequate basis for judging his acquisition of knowledge.

The chief difficulty seems to be in getting an adequate check on the pupil's knowledge of facts. Before considering this too serious, however, it should be remembered that the children in the Dalton High School did not gain less control of the information side of their courses even in the first term under the plan, as judged by their marks. The problem, then, seems to be for each teacher to develop a new technique that will give him the same confidence in his supervision of the learning process that has become traditional under the old method of daily assignments and recitations.

Modern languages have proved the most difficult subjects to readjust to laboratory conditions. Mr. Jackman has pointed out that many difficulties are inherent in our attitude towards the teaching of modern languages. Dissatisfaction with old methods is becoming more and more common, and the introduction

of the free-study plan will do much to clarify these weaknesses. Meanwhile the teacher has an opportunity to develop better methods of instruction by trying new groupings of subject-matter and of students. The Dalton School reports the best adjustment by using the free study time and class periods as a device for working with small groups. A flexible programme is mapped out for languages. Pupils are roughly classified according to their knowledge and ability in the subject, and small groups are assigned to the laboratory for certain periods. The teacher works with these pupils, making greater progress because the class is small and because each member is at the same stage. Meetings of the whole class are held to keep up group spirit and to promote a uniform standard. Pupils may also use the laboratories during the free study periods at times when they are not required to be there for group work.

The Latin teacher has not had the difficulties reported by the French and German departments. Latin is accepted as a dead language, and since no attempt is made to have pupils speak or read it with real fluency, progress is very little affected by oral practice. Since

pupils can have access to the teacher's expert assistance during study time, she can require a higher-grade performance than is possible where all preparation is done out of school. In this way it is possible to cover more ground during class meeting and to spend less time on details of construction and syntax. The pupil's mastery of grammar is checked through his prose and through written questions. The Latin teacher at Dalton says that the pupils do more work because the assignments are posted by the month. What is considered one-tenth of a year's work in Latin under the traditional daily recitation plan is done in less than a month with assignments and free study time.

The history teacher has made a special effort to adapt his methods to the new programme. His classes have three meetings a week instead of the usual five. A large block of work is planned for each month, and the weekly assignment is made a unit building up towards it. The class meetings are made periods for discussion and for giving continuity to the facts studied. The first two are lectures giving outlines, important points and some definite instruction in how to study and what to look for in the coming lessons. Free discussion is

encouraged during these lectures, and questions are asked to bring out the meaning of the assignments, never to test an individual's memory of facts. The third period is devoted to some type of questionnaire, to test progress and ensure the pupils doing their work with sufficient thoroughness. Once a month, this takes the form of a written examination on the past month's assignment. At other times, it is devoted to reports from groups of pupils who have been asked to talk on special topics; to detailed supervision of small groups that are given special reference topics, and that work together in different parts of the room, the teacher devoting part of the hour to each group, or to general discussions carefully planned to bring out the pupil's information and grasp of the subject.

Mr. Jackman believes that the introduction of a plan for free study is but one step in the necessary reorganisation of the public high schools of the country. This step promotes the formation of mental habits and character qualities that are essential for good citizenship and a happy, successful personal life; such qualities as interest and industry, accuracy, critical judgment, self-reliance, initiative,

responsibility and the development of personality through opportunities for the creative spirit to operate freely.

The organisation plan Mr. Jackman is developing in his attempt to make secondary public education meet the needs of modern life in a democracy is threefold.

First is the reorganisation of the programme on the basis of free studies and assignments. The pedagogic and social reasons for this type of organisation have already been explained. Each teacher has freedom to develop the laboratory technique for his subject according to his own skill and judgment. But all have agreed upon the following machinery to ensure the plans operating in accordance with the accepted high-school curriculum and standards:

1. To indicate the year's work in monthly assignments posted in rooms of department in advance of month in which the respective classes are working.
2. To find out by careful thought the central truth of each day's assignment, and strive to make the student build around that truth.
3. To find out the strengths and weaknesses of the individual pupil, and to keep in close touch with that student's advisers.

4. To make a statement of the rank of the student at the completion of each month's assignment, and immediately place such statement (numerically indicated) on the permanent office card and (literally indicated) on the monthly report card of the student.

5. To be able to present report on any individual student of department at faculty meetings at least once per week.

Second, there is the teacher's responsibility as guide in preparing the pupils for their life after they leave school. Our American public schools are founded on the principle that every child, regardless of his birth and environment, has a right in his school life to the best the nation can offer. Mr. Jackman believes that the school should be run with the conscious purpose of giving those pupils who lack home opportunities such advice and information that they will be able to plan for professional training or for entry into industry with intelligence and ambition. To do this, the high school should have instruction and subject-matter that is suited to the needs of citizenship and a school environment that gives the child a real and complete life. He believes that vocational

guidance in high schools in rural districts should be broad. It is not their function to give technical trade training, but to have a sufficiently flexible and varied curriculum, so that all pupils can get a general cultural background. Even in such small high schools as the one at Dalton, he believes it is possible to have equipment and teachers enough to make a rough division into classical, scientific and commercial courses, and some specialisation in the last two years. The Dalton School has succeeded in adjusting its curriculum to the needs of the individual so well with this informal departmentalisation and the free study plan that all of this year's graduates are planning for further training. This requires a close relationship between teacher and pupil, so that the daily social life of the school will be on a high plane, and so that the vocational advice will be suited to the needs and abilities of the individual.

The third essential in an education for citizenship is student self-government. The use of the building, social activities, all the extra curriculum life of the school offer many opportunities for the development of leadership, and for practice in initiative, self-control, and group responsibility. This should be recognised

as a real part of the school, and organised so that the pupils' experiences are of educational value to them. This means that the faculty must share in the students' social activities, giving their interest and support, and advice when it is needed.

In order to ensure the teachers' daily participation in the student life of the school along these lines, the following statements of their duties have been formulated:

ORDER

1. To protect all students of department from annoyance.
2. To maintain respect for the instructors through their position as friends and leaders.
3. To see that coming and going is immediate and orderly.
4. To see that furniture and books are properly used.
5. To loan books of department, keeping record of the same, and at proper times to see that such books are restored to the department.
6. To help maintain a proper study hall.

ADVICE

1. To try to get on footing of friendship with assigned student and with his parents.
2. To confer at least once a month with assigned student's instructors.
3. To confer at least once each half year with the assigned student in regard to his work, his abilities, and his ambitions.
4. To see that the year group is organised with proper officers, and that representations in school council meetings is continuous and effective.
5. To audit accounts of the group organisation at definite periods, and to be able to report to the principal on the same at least once per half year.
6. To act as chaperon for social functions of the group.
7. To act as group excuse officer, keeping record of excuses, sending adequate notices to parents, and giving the principal immediate notice of unexcused absence or tardiness.
8. To check return of report cards from parents within two weeks of issuance of such cards, and to give principal immediate notice of any losses.

Each teacher is assigned to some one phase of the extra curriculum activities of the school. This has proved especially satisfactory as a method of building up a staff co-operating for the best ideals and aims of the school. It has also been of great practical value in freeing the principal from the burden of clerical work and detailed supervision that is too often his lot in small country high schools. These tasks cease to be onerous when divided among all the teachers. The school has made the following division of labour during the past year. It is made on the basis of the number of interests represented in the school, the number in the faculty to share the work, and the particular interest of each teacher.

SPECIAL WORK

Physical interests and athletic training.

Dramatic interests.

Attendance record and report.

Musical interests and record, correspondence.

Teachers' library and catalogue files.

Finance of athletic association.

This account of the Dalton High School during the past two years is not offered as a

prescription for all the ills of education. It is given in such detail with the hope that the story of what one school has done to vitalise school life and overcome the conditions that handicap pupils and teachers in many of our rural high schools may be a suggestion and inspiration to other schools in meeting their particular problems. After a year and a half on the plan, the Dalton High School has convinced itself of a need of free organisation, and in September 1921 began operating in ways more nearly corresponding to Miss Parkhurst's ideal.

CHAPTER V

THE STREATHAM COUNTY SECONDARY SCHOOL

THE Streatham County Secondary School, under the London County Council, has been re-organising on the Dalton Laboratory Plan since June 1920. The school is a large girls' public high school, with competitive entrance examination and tuition. The students have the incentive or ambition to make them enter a classical and scientific school as a preparation for higher technical training. Pupils who prove unequal to keeping up in their work are dropped. The student body is, therefore, a more selected group than is usual in American high schools. Girls may enter at ten years old, if they pass the examinations, and may continue in the school until they are nineteen. College entrance examinations may not be tried before the age of sixteen. Those who fail at this time return to school for another year. The school makes its own curriculum, which is then submitted to the University of London for approval.

The purpose of the school is preparation for the entrance examinations to this university, so the latitude is in choice of texts, supplementary work and in methods, rather than in course of study.

The Streatham School follows the tradition of the English secondary schools in accepting student self-government as a matter of course. Each pupil is a member of a form and of a house. The form is the scholastic division, the class the girl studies with. The house is the social division. Girls are appointed to a house by the head mistress when they enter the school, and they remain members of this house until they leave. The houses promote school spirit and friendly discipline. The older girls in a house are in the relation of sisters to the younger ones, and responsible for them. House pride makes the girls look after the good name of the school outside of class time. The houses are responsible for order and manners in the buildings, and for punctuality. They coach games and inter-house matches. Shields are awarded for averages in scholarship and athletics and to the winner in contests in dramatics, recitations and music. These are democratic and valuable to the whole house, because the

score is made on the basis of every member's record instead of judging from contests between the strongest girls in different houses. The houses have officers who are appointed by the mistresses from lists made up by the house members. The head mistress chooses the school officers from these house officers.

The self-government body of the forms is the school parliament. Representatives are elected to it by each form. The form suggests rules and plans that must have a two-thirds majority to be sent to the parliament for adoption. The students take an active part in the conduct of the school through this parliament. It can suggest rules and changes on matters pertaining to discipline, administration, the course of study, and the programme. These are adopted or vetoed at the discretion of the mistresses. The students take charge of recording attendance and of study halls. They collect home work and supervise make-up work, and attend to nearly all the details of class-room procedure and discipline. The parliament altered two of the teachers' recommendations last year. It had been decided that participation in house games and afternoon recreation should be voluntary instead of compulsory. The students were

emphatic in thinking that it should remain compulsory in order to ensure every girl getting a minimum of exercise. The faculty also thought that cooking should be required for all the fifth-term students. The parliament objected on the ground that it was against school tradition and interfered with the pupils' liberty. Their advice was followed, and ninety-five of the one hundred and three girls in the fifth term elected cooking.

The pupils of the school have always had the valuable experiences connected with managing the social phases of their school life. The head mistress felt that when these active, interested girls went into the class-room they became passive, learning by rote without any vital use of their own wills and intelligences. Too much emphasis was placed on the facts they learned, and too little on the mental habits they acquired in learning them. The class-room machinery made it impossible to alter conditions to meet individual needs or special occasions to any extent. Every girl in the class had to behave like every other in her rate of study, in her reactions to the lessons. In order to counteract the disadvantages of this way of learning for the girls on whom they

are most severe—that is, the rapid, brilliant worker and the slow or uneven pupil—the head mistress devised a “natural method.” Special pupils who needed to catch up in some one subject, or who were ambitious to save time, were given supplementary lessons. They were promoted as rapidly as they mastered the extra work to the teacher’s satisfaction.

But this method did not meet all the needs for individual adjustments. The average students, the majority of the school, were working under the usual conditions of herd learning. The few who were working by the natural method had difficulties because the school machinery was not arranged for them. They worked on their individual courses of study in the study halls. They were dependent on the help of whatever teacher happened to be in the hall during their free time. So few pupils were working on this plan that they were easily confused and discouraged. Although the plan benefited individual cases of maladjustment, it was hard to administer, and did little to change the spirit and habits of study of the whole school.

The head mistress read in the Educational Supplement of the *Times* a description of the Dalton Laboratory Plan. In it she recognised

the opportunity to give all her pupils the intellectual advantages that come with individual study. For the last month of the school year the classes that have taken the university examinations work on a free programme. They come to school, but spend the day in studying, reading and games, very much as they choose. The plan was explained to them, and it was suggested that they try it for the month. The aim was twofold: to give these older classes more worth-while experiences than they sometimes got during this month without interfering with their freedom; and, if the experiment worked, to have a nucleus of school leaders who understood the plan and knew how to work under it to assist in a complete reorganisation.

The assignments for this trial month were made more or less individual. Courses were mapped out for students with subject weaknesses to help them get up to standard. Supplementary assignments were given girls who showed special aptitude or interest in a subject. Others did assignments in reading, covering about the ground they would have in any case, except that they started with an organised plan and had free access to their teachers. The

month's experiment was a great success. Assignments were attacked with a new enthusiasm. Students showed an eagerness to discover and a thoroughness in study that is rare in the conventional class-room. It was this awakened interest and self-reliant attack that made the head mistress decide to continue the reorganisation of the school the following year.

When school reopened in the autumn, the older classes continued under the laboratory plan and the forms down to twelve years old began on it. At Christmas time the eleven-year-old girls began their free programmes, and in the early spring the youngest pupils, the ten-year-olds, began. At present the entire school of over 700 girls is working under the plan.

The students spend about the same time in free study and in class as those in the Dalton High School, instead of the maximum set as the ideal by Miss Parkhurst. The arrangement of time is different. Monday, Wednesday and Friday mornings are set apart for individual study and tutorial work; Tuesday and Thursday mornings are spent in class work. The afternoons are devoted to special subjects—cooking, drawing, needle-work, and recreation and games. Only the very exceptional student

can finish her work in the free study time. The average girl has to spend practically the same amount of time on home work as she would under the usual school organisation. The three types of records recommended by Miss Parkhurst have not as yet been used. Neither are the monthly assignments divided into weekly portions. Instead, a detailed syllabus for a month, with the problems definitely specified and including many questions, is given to the pupils. At the end of the month a test is given every class on the ground covered by the syllabus. Each girl is expected to pass these tests before she starts the syllabuses for the next month. The detailed questions set in these tests are relied on to check the thoroughness of the work.

Like the High School in Dalton, the Streatham School reorganised with no idea of changing curriculum or course of study. On the contrary, the primary purpose of both schools is the preparation of pupils for higher professional training. And in England, as in America, the scope of this preparation is exactly defined by the higher schools. What both principals wanted was a school set up in such a manner as to enable their pupils to carry out this

prescribed course of study more efficiently and with greater profit in the way of establishing mental habits and developing personal qualities. Since both schools have had at least the success they had before in completing their course of study, and in enabling their pupils to pass into professional schools, there is little doubt that the laboratory machinery is fitted to do the work of the conventionally organised school.

What besides this does it accomplish?

We have reviewed the values found by the American principal. The English school reports the same kind of gains. The students at Streatham have more self-reliance now than they had under the old plan. By removing the artificial props of class discipline, daily recitations, and minute assignments, the girls are forced to stand on their own feet, and so to develop self-reliance. They are no longer passive sponges for absorbing facts, but research workers, each investigating and experimenting, and doing real hard work to complete their contracts. The plan of having the ~~subject~~ library in the laboratory has proved a great stimulus to independent work. The books are at hand, so they are used; and their use brings

the students a new interest and wider outlook on the subject. At first the pupils spoke with some surprise of their interest in these supplementary and reference books. As they have grown accustomed to the plan, they accept these libraries as opportunities to satisfy their developing curiosities.

The school is formulating a definite procedure for the laboratory plan. The head mistress believes that a school should not expect to make the usual progress during the first term under the plan, but that this loss will be more than compensated by a new thoroughness in grasping subjects, and that after the first months the students will cover the usual ground and keep their gains in intensive studying. She also believes that the plan should not be used as a time-saving device to shorten the time spent in school except in rare instances. Instead, members of a class should be kept together.

The assignments should cover the minimum fundamentals of the subject and supplementary work be done according to the ability of the individual pupil to save time on the minimum month's work.

During the first few weeks on the plan most

of the time of the classes was spent in general preliminary work. It is necessary to teach independent habits of work to pupils who have habitually been dependent on the direction and judgment of a teacher. They must learn criteria for good work, how to study, and how to check their own work so that it will not become ineffectual. In order to prevent pupils from stopping work at the first difficulty or question and idly waiting for a chance to consult the teacher, the classes were taught to make notes of questions or to ask a neighbour and go on working until they can go to the teacher with a whole block of work.

All the departments make careful plans for keeping track of each pupil without requiring too much written work. Group work is encouraged. If groups do not form naturally, teachers make them by assigning girls at about the same stage and rate of work to study together. A general explanation is not made for one pupil alone, unless she is backward or the circumstances are unusual. Instead, other members of the class that are in the laboratory are asked to come to the desk at the same time, and the whole group discuss the point. For help with details or special questions, the pupil

is sent to another girl or group the teacher knows to be further advanced. When a considerable amount of written work is necessary, it is made less of a routine by having pupils correct one another's papers or by correcting by sample. The latter method is especially satisfactory for papers answering specific questions or dealing with concrete problems. Here the teacher selects the paper of a pupil who expresses herself easily and clearly, corrects it in detail, and then posts it on the class bulletin board. The rest of the class are held responsible for correcting their papers from it. Where adjustment to the new plan seems difficult, times can be set when only pupils of a certain class can get help. Others can come into the room to study, but cannot ask for help. In special cases, with either a slow pupil or a difficult subject, a definite time can be assigned for a short lesson with a small group. A twenty-minute lesson to a small group all having the same problems is more satisfactory in straightening out difficulties than a full lesson with a large class. Many apparent difficulties are avoided through the preparation given during the regular class meetings. The head mistress believes that the opportunities

for discussion of new topics or of difficulties and for individual reports are further reasons for keeping the whole class more or less together.

Modern languages have proved the most difficult subjects to adjust to the new plan in the Streatham School, as they have at Dalton. The reasons have been the same: the need for oral drill and the pupil's inability to detect his own mistakes. Mathematics and science fitted in with the fewest changes. A minimum of class meetings are held for these subjects. In science they are largely taken up with cautions and instructions in methods of work.

The head mistress has a few cautions to suggest to new schools adopting the plan. A good deal of time, especially at first, must be spent in discussion of the system with pupils, and in giving help in methods of work and in keeping up to standard. The greatest difficulty lies in having adequate information about each pupil when the pupil unit per teacher is from one to two hundred. Teachers should not allow pupils to wait for help; it wastes time, is contrary to the spirit of the plan, and when they stand and wait near the teacher's desk they overhear others' difficulties and may get confused or muddled. With thoughtful attention

to new problems as they arise, she believes that difficulties will be no greater than with the usual organisation.

After twelve months on the plan, the school finds that its adjustment to difficulties is all in the direction of Miss Parkhurst's original plan. The monthly tests given on the completion of each syllabus are no longer used. The three types of graphs have been substituted as a better method of keeping track of individual progress. The weekly graph is arranged by houses instead of classes. More and more scope is being allowed to girls for free work. As the radical transformation of school habits and attitudes brought about by the plan becomes evident, the teachers are accepting their responsibility as educational pioneers and attempting to develop the plan's fundamental pedagogical advantages as well as to get the students through the syllabuses. The school has become a demonstration for a new and better way to learn and to build character. Visitors flock there, and numbers of schools are adopting the plan.

CHAPTER VI

OPINIONS OF TEACHERS AND PUPILS

THE teachers and pupils of the Streatham County Secondary School have answered a questionnaire on the first year's work under their modification of the Dalton Laboratory Plan. The teachers expressed opinions ranging from warm support to unqualified disapproval. They were asked about the effect of the plan on the teaching of their own subjects, not for opinions on its general educational value.

The conclusions reached by these teachers are similar to those expressed by Mr. Jackman (see Chapter IV.). The history and geography teachers report the fewest difficulties in adapting the plan. The language teachers were least satisfied with the results of the new way of working. The mathematics and science teachers had to make a minimum of changes in their way of working, and found the plan an improvement on the whole.

Certain general points were rather uniformly

brought out by the teachers. The plan had been adopted in modified form. The essential features in the changes seem to be, for the teachers, the fact that the assignments were given as complete and detailed syllabuses and that monthly tests were used instead of term examinations, thus isolating the month's work as a separate unit. A number thought that this was bad for the pupil's grasp of the whole subject, and for the continuity of the year's course. Cramming for the test tended to make the girls more conscious of learning isolated facts. The test became the standard of work. A number reported that they made those tests as detailed and specific as possible in order to test the girls' thoroughness. This would suggest that the tendency to cram might not be inherent in the plan, but perhaps the result of the specific methods the teachers have tried in adjusting to it. The monthly tests have now been given up, and these specific difficulties have largely disappeared. Nearly all the teachers agreed that the pupils tend to shirk details more under the plan. The instructors, however, pointed out that this is a natural fault which must be met in any system. The plan seems to have made several

teachers more conscious of the necessity for small classes and adequate books and equipment. If the pupils are to get the full benefits of their free study time, the pupil unit should be small enough to allow the teacher to become acquainted with each girl and keep track of her work. The laboratory must be well-stocked with books and materials so that pupils can carry on research and reference work and find plenty of things to do as well as books to read.

Some of the teachers' discussions of the plan are given. It should be noted that two teachers, one in Latin and one in French, condemned the plan as a whole; otherwise the examples are typical.

"The Streatham scheme of study, which is based on the Dalton Plan, has been in operation less than a year, so that all comparisons between it and the former method of continuous class teaching can be stated in only very tentative terms. In Mathematics, the results seem to be the same as they would normally have been. There is practically no difference in ground covered or in standard attained. There is one point, however, which the new plan emphasises in a way the old did not—the direct relation

between effort and result. This seems, perhaps, the real 'hidden virtue' of the scheme. Indifferent or mentally lazy girls can follow, more or less, a well-taught lesson and can then work straightforward examples fairly successfully without any real effort. The results, such as they are, are due to the mistress's energy and the pupils' passivity. A distinct effort of concentration is needed before the average girl can grasp a general statement as expounded in a text-book, and its application involves still further close attention. With few exceptions, unless a girl really tries, she makes literally no progress under the new plan.

"The organisation of material in Mathematics presents no new problems. So far, we have worked on exactly the same General School Syllabus that we used hitherto. In this, the work to be covered in a year is stated and definite points to be mastered allocated to the different terms. Formerly, the mistress gave a series of lessons with this programme in view. Now, the children also see the programme and the work is covered between lessons and free study time.

"In Mathematics, I find my tendency is to encourage the children very definitely to use only certain specified text-books. It is a subject in which 'method' is everything, especially

to youthful and elementary students. There are comparatively few text-books which can be trusted, and one might almost say the discrimination of children as regards rival methods can never be trusted.

"The fixed lesson periods I use mainly for explanation of new material for the senior girls: this practically means a lecture on a part of the syllabus not yet done by them.

"A certain amount of discussion may take place during a lesson, but the sets we teach are too large, and in some cases not sufficiently of one standard, for such discussion to be really profitable.

"The main difficulty in Mathematics lies in ensuring that the children use good methods in working out exercises, whether in Algebra, Arithmetic or Geometry. Formerly, most of the work on these subjects was done under the mistress's direct supervision. During the first months I found many of the children worked out many more examples than they would formerly have done. This was to be encouraged. They were provided with answer copies to avoid waste of time in corrections. A child who did one or two sums of a certain type and could not get them right at once came for help. The theory was then explained and good methods were emphasised, but the case of those

who achieved the correct answers was different. Sometimes a file would be handed in containing a large number of sums with correct answers, but worked out by unmathematical or clumsy methods—methods in which the pupil had become expert. To avoid this, I set a month's syllabus and divide the work to be handed in into so much each week. Most children, especially those fairly good at the subject, do hand in their file week by week, but to enforce this would be merely to set weekly syllabuses with an almost definite time-table."

"The girls have all the advantages gained by wide reading. The history library is in the subject room, and they come and borrow the books suggested in the syllabus, or others they may discover themselves.

"Under the old system, they had one outline text-book and a book of documents, and had little opportunity in school of reading biography, travels, etc.

"On the whole, more ground is covered in a given time.

"The lazy or weak children become more obvious to the mistress. They can no longer scrape through a terminal by memorising lessons, and are bound to attempt individual work. After a preliminary failure, these chil-

dren seem to gain in power as time goes on. A very small percentage (about six of the 150 girls I meet) remain unsatisfactory.

"It is easier to organise material, since many aspects of a period, viz., social life, biography, travels, can be gathered just as well from the use of a library. Lesson periods can, therefore, be devoted to arranging more difficult material and putting people and events into their due proportion.

"Given a suitable library, the children frequently use ten or a dozen different books for the month's work. Thus they get different points of view and fresh aspects of truth. This widened outlook is apparent in their written tests, which show an originality and freshness seldom seen under the old system.

"There is one period per week set apart for a history lesson in each form, but this period may be devoted to study or discussion and a formal lesson is not necessarily given each week. For example, forms studying the geographical discoveries of the sixteenth century had one lesson on the main directions of Portuguese, Spanish, English discoveries, etc: They read for themselves the lives and achievements of individual discoverers.

"Under the old system, a mistress teaching history deals with new material in a lesson,

associating closely with acquired material and developing a sense of connection between events. The memorising occurs at and follows the lesson, and may be tested during the next lesson period, usually in writing.

"Under the new system, the lesson material is seldom new to all the class. Consequently, the children have more to contribute, and welcome the chance of arranging satisfactorily what they have gleaned for themselves.

"The tendency to be satisfied with a too general idea and to shirk details is always present in children, and is no more marked under the new system than the old. There is just as marked a tendency to get lost in a mass of details.

"I try to meet these difficulties by careful emphasis of important facts in lesson periods; by careful insistence upon the presence of definite facts in written work done during the month; and by putting questions to individual children during tutorial periods with the purpose of ascertaining their grasp of essential details.

"The one lesson period per week is the only time when I meet a class as a whole. Otherwise, I see them as individuals when my room is open for tutorial work. Then guidance is given in reading, difficulties discussed, and written work examined.

" If the syllabus is carefully drawn up, the lessons well arranged and the text-books satisfactory, the difficulties encountered by the children in this subject are not numerous, and vary with each child. There is little need for group consultation.

" Difficulties peculiar to this subject are, first, the old one of reading without understanding, and a tendency to copy written work, whole sentences or phrases, from books.

" I have endeavoured to meet the situation by setting written work which demands attention to and selection from material used; by questions to individual children during tutorial periods; and by setting test questions which test understanding as well as memory.

" On the whole, this subject gains enormously from this new system of work."

" History and geography adapt themselves to the scheme very well—the difficulties which arise are not those of the scheme itself, but exterior circumstances. The lack of material—maps, books—is a real difficulty. The number of books essential for use and reference makes the scheme an expensive one—the brighter children are constantly hampered for lack of more material to work upon.

" Another difficulty is due to great numbers.

Exercises set on the work done are not carefully thought out unless help is given in a previous lesson. This would not occur if there were more time to devote to fewer pupils. The monthly test is regarded by the pupils as the standard upon which their work is judged, and this entails on their part a 'cramming' of a minimum of material to reach this standard—not a desire to work carefully at the subject for its own sake."

"The majority of my girls have decidedly increased their powers of understanding about the problems of plant growth and structure. Where interest is sustained, the memory is kept in order without appreciable effort. In each form we have some slackers who—if anything—do worse under the Dalton Plan. I attempt to counter the evil by persistent endeavour to arouse interest. Given an initial interest which grips, I find little difficulty in arousing attention to details afterwards.

"In the upper forms, the lesson periods are sometimes given over to lectures, sometimes to class discussion, and of course new material is always explained. In the lower forms, the periods are used for oral instruction with the aid of blackboard and hand specimens. The ground covered is, as far as possible, in

advance of the private study scheme, *i.e.*, precedes it by at least a week, but there is some unavoidable overlapping."

"I have found the result of our new plan in Science to be as follows: keen and hard-working girls often become more interested in the subject than under the old system, as they enjoy finding things out for themselves, and devising experiments.

"In some cases, the girl of average intelligence suddenly shows more interest in her work on the new system, as she finds her own particular difficulties can be dealt with, and this encourages her.

"If, however, a girl of this mental calibre is inclined to be lazy, she often wastes time at the beginning of the month, and then towards the end makes a fruitless effort to complete the syllabus by the end of the month.

"With few exceptions, I find that the girl with little ability, especially if she is lazy, does not do so well under the new system.

"The strain upon the teacher is undoubtedly greater under this system, and instead of expending her energies largely on the hard-working girls, where the effort is likely to bear most fruit, she feels impelled to expend a great deal on the lazy girls who try to evade her, and

who will probably benefit little from her instruction. This danger is one against which she needs to guard very carefully.

"When we first adopted this system, I found some difficulty in the organisation of material. I feel that this was largely because the system was new to the pupils and to me.

"At first I found that the syllabuses which I set were too long, and also that they, and the tests which followed them, were not always expressed in the most helpful way for the girls. The majority of the pupils also were awkward with their new tools at first.

"The scheme is not altogether popular with them now, but I do not think that this shows that it is not the best thing for them. A great many of them dislike it because it means more arrangement and planning for them than under the old system, and they, through laziness, would rather have this done for them.

"The pupils whom I take for science have no text-book.

"I give them one definite lesson per week, in which I deal with the parts of the syllabus which I consider will present difficulty to a girl working alone.

"I give the girls notes on important points, and expect them to write up notes on all the new work done in the lesson. They also write

up notes on the practical work which they do themselves.

"The pupils often get a more general grasp of the subject under this system, and do not regard the subject as a collection of isolated facts, as they are inclined to do if they are given formal lessons only on the subject.

"It should be remembered, however, that under the old system we aimed at continuity in our lessons.

"I have observed a very great tendency to be satisfied with too general ideas. I find that a great number of the girls shirk not only details but also important points which offer difficulty to them.

"I try to combat this by the following methods: Making the girls write up full notes on all the work done; dealing with points which have offered difficulties to many in fixed lessons; making pupils deal with their individual difficulties under my supervision in free study periods.

"I use my fixed lesson periods for the following:

1. Checking the pupils' observations which they have made when working alone.
2. Discussing the results they have obtained.

3. Dealing with matters which have presented general difficulty.

4. Helping the pupils to draw correct conclusions from the practical work which they have done. For this questioning is largely used.

5. Imparting new facts which the pupils could not reasonably be expected to find out themselves.

6. Encouraging them to connect this new knowledge with the old, and if possible draw new deductions from this.

"I have found the following difficulties. Pupils do not all work at the same rate in their free study periods, and therefore it is sometimes difficult to give a lesson suitable for all.

"I have not found a really satisfactory solution to this problem. However, I try to overcome it by paying special attention to the slow and backward girls when they are working in the laboratory in their free study periods, in order to raise them to the average level. I have also found it advisable to give the quick girls extra experiments to perform and problems to solve on the part of the syllabus at which the rest of the class are still working.

"I have found the large number of girls in some of the science divisions rather a difficulty.

I am trying to overcome this by means of group teaching in the free study periods, *i.e.*, taking all the girls in the division who require help in one particular point together instead of separately. I find this very helpful indeed.

"Pupils are likely to try to carry out experiments which are dangerous. To overcome this difficulty, the pupils should be required to describe to the teacher the experiments which they intend to carry out.

"The effect of the Dalton Scheme as applied to the teaching of French varies, I find, with the stage of the pupil.

"With the second year pupils, I have kept to the prescribed text-book. Unless one is prepared to abandon the direct method of teaching French and to revert to translation methods, the pupil cannot at this stage break any new ground for himself. His pace is, therefore, regulated by the amount that can be covered by the teacher in recitation periods, and his individual work consists of consolidating that by exercises, learning by heart, etc. Any attempts I have made to let these young people break ground for themselves in reading, grammar, or the study of verbs have met with little success, and have necessitated the difficult task of unlearning.

"The weaker pupils are often content with

a vague general understanding of the matter read. Surprisingly few questions were asked about the text that was being studied, and these usually just as to the meaning of a word. Many of the girls seemed to be unable to pick out a detail worth observing—the idiomatic use of a word, for instance.

"To counteract a tendency to inaccuracy with the younger ones, I tried the keeping of vocabulary and verb note-books. This was useful, but required supervision, for which the time was lacking.

"Class meetings were held as follows: Second year pupils, three lessons of forty-five minutes; fifth year pupils, two lessons of forty-five minutes. For the younger pupils, the time was almost entirely used in going over new material, with some oral work. For the fifth year students, the recitation hour was devoted one week to explanatory lectures and English-French translation; the following week, to practice in grammar work and discussion of subjects for composition.

"Oral work is neglected. There is too little time for it in the lessons. I quite failed to keep a 'French atmosphere' in the laboratory.

"Especially with the younger pupils, there is a tendency, when working away from the teacher, to slip back into English sounds and

English forms of thought and to have continual recourse to translation. I do not know whether to attribute an epidemic of French dictionaries amongst the second year girls to this or not."

The first question asked the pupils was: What have been the advantages of the Dalton Plan over the usual school system for you? A few children said they had not been benefited at all; in fact, did not like the plan so well. The most frequently mentioned advantage was the free time-table that enabled them to arrange their day as they chose, and especially to save time on their strong subjects to put on their weak ones. The next most frequently noted advantage was the opportunity to get the teacher's help in study time as they needed it. This, they said, increased their interest and enabled them to do more and better work. A number of pupils said they did more reading because the books were at hand. Many of them mentioned their growth in self-reliance and independence.

The second question was: Is it harder or easier for you to do your work than before? Is there a difference between subjects and teachers in this respect?

The majority of pupils reported that some subjects were easier and some harder than before. Not enough instances were given, however, to discern whether the same subjects became easier and harder for all the pupils. A few children reported that all their studying was easier, and a number that it was all harder, but that they did it better. Several of the older pupils said that there was a marked difference between teachers in this respect.

The third question was: Do your lesson periods help you in your free time, or do you sometimes feel there is not enough connection between the two?

Most of the answers were in the affirmative. The class meetings did give the necessary help for the understanding of their syllabuses, and where they did not, pupils could get the additional assistance from the teachers in the free study time. English seemed to be the one exception to this. Some pupils said the connection between the class work and study was not always clear.

The fourth question was: Is your general grasp of the term's work in a subject increased under the plan? Are you ever tempted to shirk details, or do you work more thoroughly?

The first part of the question was evidently vague to the girls. The majority of the answers were not definite enough to give any impression of the pupils' idea of their grasp of the work. The second part was answered with an apparent contradiction in the great majority of cases. They agreed with the teachers that they were tempted to shirk details, but added that their work was more thoroughly done. The answers of the more articulate children would indicate that they meant an affirmative answer to the first part of the question. Their interest and general grasp of the subject was increased, but they tended to slur over details for the main issue.

The fifth question was: Have you lost interest in any subject; have you lost your distaste for any subject? The answers to this were too varied to have any marked significance. More pupils reported losing their former distastes, however, than losing interests. In view of the teacher's statement about French, one interesting group of answers was found. A number of girls reported that they had lost their distaste for French, and almost none reported liking it less than before. The following answers cannot be considered typical

of the several hundred received, as they are more explicit, but they are given because they emphasise some of the points made by many of the pupils.

"One learns more thoroughly, finding out facts for oneself. Apart from this, I do not think there are any advantages.

"It is much harder to do the work, because (a) you do not have so much help as before; (b) you do not seem to have so much time, as it takes longer to do the work yourself.

"My lesson periods do help me in my free-time work, because nearly always a difficulty is explained. But, in English for instance, I do not think there is enough between the two.

"My general grasp of the term's work in a subject has not increased under the plan. I think I work more thoroughly, because more interest is taken.

"I have not lost interest in any subject.

"I do not like history so much under this plan."

"I have gained in that I have been able to pull up my weakest subject, although I have sometimes found that I have let other subjects slip for this special one. Also, I feel more self-reliant, for example, with regard to home-work.

"Generally I find it easier to do the work,

since I can take time to go over a thing till I can understand it; but after, I find I am behind when the examinations come.

" My week's work in most cases depends entirely upon the lessons given, and those periods which are not devoted to lessons are given up to the explaining of our difficulties; and since there are rarely more than five at a lesson, we find them most helpful.

" I think that I get through just the same amount of work, although in maths. I do more examples.

" My general grasp of the subject has not been increased.

" I have lost interest in none of my subjects.

" I have lost my distaste for one subject.

" I can more thoroughly grasp the subject at which I am working. It enables me to clean up any difficult points by puzzling and solving them myself. More time can be given a weaker subject.

" I find my work easier in French, geography and history, but harder in English.

" Lessons in most subjects are helpful.

" The grasp of the work in the syllabus is increased. There is not a sufficiently long time of study to attempt to go into many details in a subject. The work done is certainly done more thoroughly.

" I have lost interest in drawing.

" Lost a little distaste for French."

" There is the advantage of being able to carry on with one subject without being interrupted by another lesson.

" It is harder in general, but I find geography easier.

" On the whole, the lessons do help with the free-time work.

" In most subjects my general grasp of them is increased, but in one or two, such as history, it is not. In most cases I work more thoroughly, as it is interesting to find out the details for oneself, and when they are found I remember them better.

" No. Not very interested in history.

" Yes. French."

" The advantage of the Dalton system is that we learn the work by ourselves and obtain a better grasp of a subject, also we have a whole afternoon for games.

" It is easier to work than before, although there seems more work to do.

" Lessons help a great deal in free-time work, and I always feel there is some connection between the two.

" The general grasp in all subjects is in-

creased, but in some subjects I am inclined to shirk, in other subjects I am a little more thorough.

"I have lost interest in one subject—geography—but I have lost my distaste for two subjects—geometry and French."

"The advantages of the system are more time for working at weak subjects and opportunities for wider study of most interesting subjects.

"It is easier in some subjects, but harder in the weakest subjects. Subjects and teachers make a great difference.

"The lesson periods do help in the free-time work. I always find enough connection between the two.

"My general grasp of a subject is not increased. In subjects that I do not like, I am tempted to shirk details, in some subjects I work more thoroughly.

"Yes, in physics. Yes, I have lost my distaste for French because I can do it better than before."

"The Dalton Plan has taught me to study much more carefully, and take a wide view of things when reading. It has taught me to rely more on myself, and to glean knowledge from more books than I did in the old system.

"I think this system makes the girls work harder for themselves, especially in mathematics and science (physics, chemistry and botany). But it is much easier to learn English, geography and history. In my opinion, there is no difference between subjects and teachers.

"The lesson periods help me very considerably, especially in mathematics.

"My general grasp of the term's work is much greater in geography, history and French and physics.

"I think it makes one work much more thoroughly, and not shirk details.

"I have not lost any interest in any subject, but rather increased it.

"I have lost my once strong distaste for arithmetic and algebra."

"There are not many advantages for me in the Dalton Plan. I prefer the usual plan, but I think I have a better general grasp of the term's work than before, and I understand some subjects, such as mathematics, better.

"It is harder to do the work than before this system.

"In languages, there is a difference between teachers and subjects.

"The lesson periods help in history, mathe-

matics and chemistry, but in English they do not help very much.

"At times it is hard not to shirk details in the work."

"One advantage I have discovered is that you have to read more deeply to understand a thing, and that you have to think more. You are able to obtain more advice from mistresses.

"I find that some subjects are much easier, and others just a little harder. Yes, there is a little difference between subjects and mistresses in this respect.

"I find that the lesson periods are a great help as regards my work in the free periods, and there is a large connection between the two.

"Under this plan I find that I grasp a subject much firmer than under the old system; also I find that it is much more thorough under this plan—sometimes after the exams. I feel as though I must slack.

"I find that in drawing I was much more interested than I am now, but that is the only one. In French and mathematics I have lost my distaste, and have a firmer grasp on both."

"It has helped us to get on by ourselves, and will prepare us for the time when we go to college. It has trained us in self-reliance.

"It is harder sometimes, because if we cannot do a piece of work and there is no study time we have to wait for a lesson.

"The lesson periods help considerably.

"My grasp of the subjects is increased.

"On the whole, I work more thoroughly, but sometimes we think we will do it to-morrow, but with the usual system it has to be done."

"With the Dalton Plan, I feel we can learn more thoroughly. Somehow, we seem to have more time for learning, and we seem to concentrate more on our work.

"I think that on the whole it is easier for me to do my work than before, because the subjects I find are most difficult I can do in school and the easier ones I can do at home.

"The lesson periods help me a great deal, because in the different lessons the syllabuses are explained and notes given which are sometimes connected with and are part of the syllabuses.

"I do not think that the general grasp of the term's work is increased. I seem to learn the work in one subject one month thoroughly, and then the next month, with a new syllabus, I seem to forget the first month's work.

"I am inclined some months to shirk details.

"I have not lost interest in any of the subjects."

"I have lost my distaste for one subject which I used almost to hate."

"The advantage of the Dalton Plan is that more work is done individually.

"It is harder for me to do the work now than before.

"My lessons help me a great deal in my free time work, although sometimes I feel that I should like more lessons.

"My general grasp of the term's work is not increased at all under the Dalton Plan. I am often tempted to shirk the details.

"I have lost interest in three subjects.

"I have not lost distaste in any subject."

CHAPTER VII

THE CHILDREN'S UNIVERSITY SCHOOL

Two modifications of the Laboratory Plan that have been used in large public secondary schools have been described. The Children's University School, a small private school in New York City, is carrying out the plan in its complete form. Here Miss Parkhurst has been free to experiment with school organisation to meet the needs of child psychology and to change the conventional curriculum according to her conception of educational theory.

For the past two years, 1919-20 and 1920-21, children from nine to fourteen years old, those in the five upper grades, have been working on a free programme. The school has an eight months' year, and is in session from 8.45 to 4 o'clock. This is desirable especially in a big city if the school is to be a real community where the children lead a complete life. With the shorter day, every moment of school must be taken up with academic subjects.

The pupils then go to other environments, other teachers or schools for their recreation and for special lessons, French, dancing, or gymnasium and sports. • Or they spend their afternoons in city streets and parks, where there are no opportunities for creative play and worth-while experiences. Such varied and complicated programmes are bad for growing children. It is impossible to make sure that the mental habits so carefully fostered in the morning are not broken down in the afternoon by teachers with different methods and ideals. Too varied experiences and a minutely supervised day lead to nervous strain and premature sophistication in young people. If the school day and environment are arranged to give the child social activities and valuable practical experiences, he can lead the natural continuous life necessary to establish right mental habits and good social adjustments.

Miss Parkhurst's school has teacher specialists for the academic subjects and for music and dancing, art, carpentry, gymnastics and playground work. Academic work, including science and art, is organised with free study and assignments. Music and recreation come

at fixed hours in the afternoon, because this work is social in character and depends on group exercises and expression. The carpentry work centres around a toyshop that is open during certain hours, chiefly in the afternoon. Pupils are free to work there at any time, but blocks of required work are not mapped out as contracts to be completed at a certain time. Instead, the teacher helps individuals or groups carry out plans she has suggested or approved.

At present, the school is working on the schedule suggested for the Laboratory Plan in Chapter I. Pupils work in the subject laboratories on their contracts until noon. Then follows one hour of group work; half an hour for committee meetings, assembly, special conferences or work on special projects, and half an hour for a regular grade conference in a different subject each day. The noon recess is from twelve to one, when a hot lunch is served for pupils who cannot go home. The afternoon programme for work in the studio and toyshop and for athletics is on a free programme. The art conference, music and organised games come at fixed times on certain days. Class excursions to parks, museums, exhibitions or factories are taken in the afternoon as they

seem desirable to supplement class studies. Classes and laboratories are managed wholly through the teacher's intimate knowledge of each pupil, possible with small classes, and through the three records described in Chapter II.

It was suggested above that Miss Parkhurst believes conditions of work for children are more important than the particular set of facts organised in a course of study for a school. She says: "The curriculum should vary with the needs of the pupils. Just what shall be put in or left out will be a matter of prolonged debate until the educational world awakes to the fact that the curriculum is not the problem of chief concern. Conditions are necessary which, if understood, will remove the obstacles in the learner's path and make him gratefully appreciative of assistance given by teachers. The conditions pupils live and work under are the chief factor in any environment. The environment must create these conditions for soul growth. They must be social and for the good of society. There must be the give and take of social intercourse, for it is the experience attendant to the task, not the task or act in itself, that occasions and furthers growth.

"What we desire is a community environment to supply experiences to free the native impulses and interests of each individual of the group. Any impediments in the way of native impulses prevent the release of pupil energy. It is not the creation of pupil energy but its release and use that is the problem of education.

"The Laboratory Plan puts emphasis on the way the child lives, the way he functions as a member of society, rather than on what he does or the method used in doing a thing. The stimulus and food for his growth is provided in his community experiences. It is the sum total of these experiences that determines his knowledge and power. His energies are set free. He corrects mistakes by discovering that he cannot obtain his self-set objective when there is a flaw in his plan. He must make a new plan. He finds it profitable to consult his fellow workers. Their points of view clarify his ideas and his procedure. The finished job takes on a halo because it embodies all he has felt and lived. This sort of studying is not pretending. It is being; not subjection but creation; it develops initiative and versatility. School becomes experience. Each new opportunity and advantage

is justified if it provides experiences for further development."

With this point of view toward education, Miss Parkhurst did not concern herself with subject-matter changes during the first year and a half of the school. Instead, she relied upon the conditions of work to free the children's abilities and establish right mental habits. The free study time enables the pupils to work under conditions such as prevail in the world outside of school. They have to plan their own time; work out their own problems; use reference books and apparatus independently; adjust to changing groups of fellow students. They are free to work at their own rate of speed, but have to come up to certain minimum requirements.

Inexperienced children require guidance. They must learn how to work. In the Children's University School, the subject laboratories with teacher specialists provide for this. They ensure a quiet, orderly place where the child can concentrate, thus getting the necessary practice in self-discipline. The teacher is there to help with technique: to teach the proper methods of using a dictionary, for adding a column of figures, drawing a map or using a plane.

A child must also get control of the funda-

mental tools of knowledge—reading, writing and arithmetic, and a certain minimum of science, geography and history—to enable him to understand the world he lives in. The monthly contracts provide for this by fixing the general field of investigation for the pupil. They also ensure continuity of work by demanding completion at a certain time. They lead the child to new problems and higher standards, and give an environment with new experiences and increasing complications.

Miss Parkhurst believes the conventional curriculum can do all these things with the reorganisation of the conditions for work. Like many progressive teachers, she also feels that the complexity of modern civilisation makes it impossible to teach a child in his school life all the facts he is going to need. This is the explanation of her emphasis on the point that curriculum, the selection of facts, is unimportant compared with an opportunity for the child to discover a method of attack upon any problem; for her interpretation of this is unlike that of most teachers. Given the right conditions for scientific method in working, practically any worth-while activity that interests a child has educational value.

Spontaneous interests give a greater impetus to study and creativeness than set tasks. It is still a moot question just what experiences and facts are most necessary for the best education of children. It therefore seems a legitimate experiment to be guided by the child's interests and curiosities in setting up his school environment, and so to release his personal qualities of initiative, interest and effort for creation that is valuable to him. It should be remembered that these spontaneous interests are not undisciplined, random impulses. They develop in the school, where the children are surrounded by an atmosphere of work and study and under the guidance of experienced teachers. Pupils had been working on contracts in subject laboratories for twelve school months, and the teacher was at hand to reject the merely trivial and to correct gross errors in judgment. Therefore, when the school was ready to begin changing the curriculum, pupil interests, not adult analyses of what a modern curriculum should be, were allowed to guide the change.

Towards the end of a month in the spring of 1921 all the students were called together and asked if they would like to have their next

month's contracts about something that each was particularly interested in studying. They were not asked to select a subject, arithmetic or history, for a complete month's work, but to list the five general topics they most wanted to know about in the order of their preference. Among the things listed were: law, flowers, horses, boats, astronomy, plants, bridge-building and dancing. Instead of organising these interests into single courses of study for each class, the experiment was tried of giving individual contracts closely confined to the expressed interests. The girl who put dancing at the head of her list was anxious to change as soon as she was reminded that she would have to work on it steadily all day for a month. Children who chose closely allied topics like flowers and plants were grouped and given the same work. It was decided to let the child who asked for horses work on the topic. She had shown a passionate interest in them, hurrying through her lessons to go to the studio to draw or model horses, and decorating all her notebooks with sketches. A period of concentrated study seemed an opportunity to let her work the interest through. Each teacher made a subject assignment using material from the chosen field

and involving the particular skills of her subject—arithmetic, reading or composition. The geography laboratory was made the centre for the pupil's special research. The teacher planned the assignments after discussion with each child, so as to enable each to follow out his particular interest.

The plan was tried frankly as an experiment. It was not the intention to force the same topic on a child month after month, or plan the work as if he were starting a period of specialisation or intensive technical training. No special equipment was purchased. Instead, the child's investigations were confined to books and museum trips where there was not suitable practical apparatus in the school. The method was continued for the remaining two months of the school year. The second month there were fewer individual assignments.

The work of these two months so far cannot be called an experiment in the "project method." The subject assignments were not worked out as unified projects, but the topic interest was employed to provide the motive for the usual drill. The children were therefore not really studying the subject they had chosen. Instead, material was taken from that

subject to clothe the subject assignments. The geography assignments gave the pupils an opportunity to do enough special reading to answer their original curiosities.

The experiment is still too new to be able to plot its advantages and peculiar problems. The teachers felt that the plan had increased the co-operation between the departments; and that the pupils' interests were clarified and were led to new subjects rather than towards more intensive work on their first choice. The classes made satisfactory progress in all the drill subjects. The time taken for his contract by each pupil was about the same as usual, but all the children did more work. The use of an individual interest as a motive seemed to give a new impetus to the pupils' effort and responsibility. The teachers feel that the tendency of this initial stage is towards projects. The work involved for the teachers and the increase in equipment necessary to enable individuals to study the subjects of their choice properly will, of course, be very great. If the method does develop into this, progress in the fundamental skills should be measured by the standard tests. This gives the teachers an objective basis for suggestions and guidance to pupils, facilitates

the checking of the individual's progress, and increases the value of the experiment as a demonstration for other schools and teachers.

The month's contract for the group of children who elected to study astronomy is given. It shows how simple the first step in the transition to individualised assignments may be. In geography the first week's assignment was written by the teacher; the other assignments were planned by the children.

ASTRONOMY

ASSIGNMENT IN GEOGRAPHY

One Month

First Week.

I have a very interesting book for you to read this month: *The Book of the Stars*. Let us start with Chapter IX., which tells about the planets. The author calls the planets "the Earth's brothers and sisters." I suppose he would call the other stars the distant cousins of the Earth. The countless stars that make up the universe are cousins in the sense that all mankind is one big family, while the eight planets, including our Earth, are the children of the Sun.

1. What does solar system mean? What is a

planet? Why do we notice the movements of the planets, while the other stars seem fixed in the heavens? What are the asteroids? If you look up the meaning of the word "aster" you will know how the little blue flower got its name.

2. Using a compass, copy the picture on page 35. List the eight planets in your book according to size and according to distance from the Sun. Find out, by referring to a book on mythology or to a dictionary, what each planet's name stands for.

3. Do you know that the Earth is really farther away from the Sun in summer—that is, when we have summer in the Northern Hemisphere—than in winter? I think your book explains the cause of the seasons very clearly, but it is sometimes hard to understand what we do not see.

Another week we shall probably have our Uranisphere in working order, and then I shall ask you to make a drawing of the Earth going around the Sun.

4. Why did astronomers think there should be a planet between the first four planets, Mercury, Venus, Earth and Mars, and the last four, Jupiter, Saturn, Uranus and Neptune? Using a compass, draw eight circles around the Sun, properly spaced of course, to show the

orbits of the eight planets. Don't forget to leave a space for the asteroids.

5. Try to understand what is meant by "density" and "mass" as the two words are used in your book. Compare the weight of the lead ore in the museum with that of the iron ore. Why does the Earth pull the lead ore more than it pulls the iron?

6. The rest of the chapter tells us how the planets were born from their parent, the Sun. What do you mean by nebula? How is a nebula different from a body like the Earth? If it were of the same size as the Earth, would it weigh more? If it weighed as much as the Earth, would it be of the same size?

Second Week.

We read *Four Small Worlds*, and wrote a story about Mars. We wrote why we think there are people on Mars.

Third Week.

We read *What the Stars are Made of* and *Restless Stars*. *What the Stars are Made of* tells about the spectroscope. *Restless Stars* tells us how we can tell whether the stars are going towards us or away from us.

Fourth Week.

We read *The Colour of the Stars* and *Star L*

Clusters and Nebulæ. We painted a picture of the spectrum of Sirius. We also made this assignment.

ASSIGNMENT IN MATHEMATICS

One Month

First Week.

Since you have chosen Astronomy for your assignment this month, you will be interested in finding out all you can about the Sun, Moon, Stars and Earth.

1. We are told that the Sun is about 93,000,000 miles from the Earth, and Venus is 2,300,000 miles from the Earth. How much nearer is Venus than the Sun?

2. If the Earth moves around the Sun in one year and Mercury moves around the Sun in 88 days, how many times will Mercury move around the Sun while our Earth is moving around the Sun once?

3. If Mercury is one-seventeenth as large as our Earth, how many Mercuries would it take to make a volume equal to that of our Earth?

4. It takes Saturn twenty-nine and a half years to revolve around the Sun. How much longer does it take for our Earth to move around the Sun?

5. The Earth in its annual journey around the Sun moves about 68,000 miles an hour. How far does it move in a day, or twenty-four hours?

6. The Sun is 93,000,000 miles from the Earth. Light travels this distance in about eight minutes. How fast does light travel?

Second Week.

1. The planet Mars' year is 686 of our days. How many of our years is it?

2. Venus' year is 224 of our days. What part of our year is it?

3. From the information I have already given you in the first week, can you find how far our Earth travels in one second?

4. Which of the following planets has the greatest diameter?

Neptune	.	.	.	35,000 miles
Saturn	.	.	.	70,000 ,,
Jupiter	.	.	.	85,000 ,,
Venus	.	.	.	7,700 ,,
Mercury	.	.	.	3,000 ,,

(a) How much larger is the diameter of Saturn than that of Venus?

(b) How much larger is the diameter of Venus than that of Mercury?

(c) How many times will the diameter of the Sun, which is 865,000 miles, contain the diameter of Mercury?

5. Come to me for some drill work.

Third Week.

1. A sidereal day is the time it takes the Earth to make one complete revolution on its axis.

There are 366.24 sidereal days in a year and 365.24 ordinary days. How many days difference would there be in ten years, in sixty-five years, in thirty-nine years? How many hours difference, how many minutes, and how many seconds?

2. If a clock is to keep sidereal time, it must be regulated to gain twenty-four hours a year. How many minutes a day is this? How many seconds a day is it?

3. In the "Orion" group you will find Sirius. To the south of it is Canopus, which is the most brilliant star of Argo, named after the ship in which Jason sailed away in search of the "Golden Fleece." If Canopus is 10,000 times more brilliant than the Sun, and Sirius is forty times more brilliant than the Sun, how much lighter than Sirius is Canopus?

4. You will notice in *Astronomy from a Digger* that the best months to study the

"Great Bear" are from January to July if you look at them at 9 o'clock. If you look at 11 o'clock you can study them one month earlier. During what month could you study them if you look at them at 1 o'clock and at 3 o'clock?

5. Come to me for more drill.

Fourth Week.

1. What would be the distance from the Sun of a planet which is 105 times as far away as the Earth?

2. If it required fourteen hours for light to pass from the Sun to a planet at that distance, how far would light travel in one minute?

3. If Saturn in its year has 23,000 days and nights, how many times as many as our Earth has it?

4. If Taurus is conspicuous in the eastern evening sky from September until the end of December, how many days is it visible?

5. From January until May it may be seen in the evening, high up in the sky, a little farther west each evening, then it disappears. How long is it before it disappears?

6. (a) If Mercury, which is nearest the Sun, is thirty-six million miles away, how much nearer is it than the Earth?

(b) Light travels from Mercury to us in

about four minutes. How far is that per minute?

7. How many years ago were recorded observations made of Mars if they were first made in 272 B.C.?

ASSIGNMENT IN GRAMMAR AND COMPOSITION

One Month

First Week.

Make lists of the words you have added to your vocabulary from the reading of the story of the *Winged Horses*. Put the nouns in one list, the adjectives in another, the adverbs in a third list, and the verbs in a fourth.

Imagine that after Bellerophon marries the king's daughter, he tells her the story of his slaying the Chimæra. Write the story as he might have told it. Use the best words you can. Make an outline first.

Second Week.

Dramatise the story of Perseus and Andromeda, or imagine Perseus's little grandson telling the story of his grandfather's exploits to some of his friends. Write out the story as he might have told it. You will find an outline helpful.

Third Week.

This week let us make a study of some words from your reading. Be sure that you know the meanings. Then put all the nouns in one column, the verbs in another, and the adjectives and adverbs in two other columns. In order that you may see how the word is used, I have put the number of the page on which each occurs. (The list included thirty-two new words.)

Fourth Week.

If you have not dramatised one of the other stories, dramatise the story of Theseus and Ariadne, or, beginning with the second paragraph on page 188, *Stars and Their Stories*, write another ending for the story. Make us see what you tell us.

ASSIGNMENT IN READING

One Month

First Week.

One of the books we shall use this month is called *Stars and Their Stories*. You will find some very interesting stories in it; the pictures and the charts will help you to understand what you read, and to find the stars too.

Read pages 3-40. Get a copy of Hawthorne's

Wonder Book and read the whole story. Find on page 7 the Latin name for "The Two Bears"; on page 14 find four other names for the "Great Bear"; on page 15 find another name for the "Little Dipper"; another name for the North Star. What are the "Pointers"? If you cannot find these constellations, get somebody to help you.

What is the most exciting part of the story of the Chimæra? Are there other parts of the story almost as exciting? What other adjectives besides "exciting" might you use? Did you like the way the story ended?

Make a list of the pages that have good descriptions. Discuss them with me. If you were an artist, could you make some good pictures from the descriptions?

Did you understand Longfellow's poem, "Pegasus in Pound"?

Second Week.

Read pages 60-82 in *Stars and Their Stories*.

Do you think Perseus as brave as Belleroophon? Make an outline of the story and learn to tell it to your group. Use some of the new words you have learned. Make your picture clear. If you do not know how to make an outline, come to me. Tell the story to me before you tell it to your group.

Third Week.

This week you will read about three constellations that belong to the Orion group. They are: Orion, Sirius, and Taurus. Perhaps it is not too late to find them in the sky. Winter is the best time for seeing them. Look at the charts and pictures on pages 84 and 85. Now turn to page 97; what interesting facts do you find about Betelgeux and Rigel? On page 99 you will find some interesting facts about Sirius and Canopus.

Perhaps you have heard of the Pleiades, or of the Seven Sisters. On pages 98 and 99 you will read about them.

Now read the story of Orion, pages 87-97. Is the story as exciting as the story of Perseus? Did the end of the story please you?

On pages 100 and 101 there is something about Astrology. Read it and talk it over with me.

Do you understand the poems on pages 101-107?

Fourth Week.

This last week we have some wonderful stories to read. You will find them in *Stars and Their Stories*, pages 157-192.

Since I have given you questions about all your other readings, I shall give no questions

about this assignment. I shall let you come to me and show me what the reading has meant to you.

ASSIGNMENT IN HISTORY

One Month

We are going to study the history of Astronomy by learning about the great astronomers through the ages, and what they did. Astronomy is probably the oldest science in the world, and was studied long before other sciences were heard of. Some of the Greek philosophers that we have read about were very learned in Astronomy.

Let us keep a note-book on the History of Astronomy. In this note-book let us enter the names of the great astronomers, the dates when they lived, and what each one found out and added to the knowledge that was already recorded on the subject. Let us have one page for each great astronomer. Put his name at the top, and the dates when he lived. Then below put down what the astronomer found out about the Earth, the stars, the planets, etc. We shall begin with the Greeks and come down to the present time.

The book to use is called *Stories of the*

Great Astronomers. You will have to use the table of contents and will have to read a good deal of the book to find out all the names. (The finding and writing about two astronomers will be one day's work.) I suggest that you write out what you find on paper first and show it to me. Then we can make what changes are necessary before it is put into the note-book. Let us try to have our note-books so neat and clear that they will be very useful later as reference books on Astronomy. Perhaps you can draw plans and pictures to illustrate the discoveries of the astronomers.

CHAPTER VIII

THE NEED FOR AN IMPROVED EDUCATION

THE Dalton Laboratory Plan is particularly significant at present, because parents and teachers are feeling that children graduate from our schools without the training and character qualities that are necessary for a successful life. Many of them are doing something about it. They, at least, give an analysis of the failure of the present educational system to educate. Many who will not admit these analyses admit the failure. They explain this failure from their own temperamental point of view. The explanations are as numerous as temperaments are numerous.

For some, schools fail because education is not as it used to be. We coddle the child and lap him in frills and fancies instead of devoting ourselves to the four essentials: Reading, Writing, Arithmetic and the Big Stick. "If it was good enough for me, it is good enough for my children."

To others the trouble is that things *are* just as they used to be. If their education was classical they ask: "What can you expect from a system dominated by our colleges, where the classical tradition largely prevails?"

If they worked hard and left school young they ask: "What can you expect in a country where laws do not compel children to stay in school until they have learned a useful trade?"

If they got good marks they say: "Memory is the only thing that counts. I happen to have an excellent memory, so of course . . . etc."

If they got poor marks they say: "No attention is paid to the individual. I was an exceptional child, dreamy, always writing stories. No one appreciated me."

Some teachers keep this strong, personal view on education. They are apt to start schools from the fullness of their hearts. The chief aim, often unconscious, is to avoid doing to other children the things that were done to them. The result is often an excellent school, where little children are safe and happy. We cannot help wondering at the faith of the initiator that what might have been good for her will be good for all children. The correction of a single misfit seems a limited basis for a thing

so complicated as bringing up children. But it is a kindly human limitation after all. It makes sure that the school will be interested in each pupil.

Such schools are rather shocking to many people because they present a new set of limitations. But are they any less suited to the business of education than most of our big successful systems, public or private? How long would a railroad last if its president said: "Oh yes, wooden cars are unsafe. But we can't change them. All our cars are wooden"? There is a principal of a school who says: "Yes, of course we have outgrown the old ways, but we can't change them. We must pin to them until something is worked out to take their place." Such modesty might be a virtue in a school girl, but in the head of a school the kindest name that can be given it is caution. Why not demand that teachers themselves do a little of this working out, at least while we are waiting? A few years ago there was a system where the superintendent boasted that by looking at his desk clock he could tell what every child in town was doing. But it was in one of his schools that a pupil said: "Oh, mother, now I know what you mean when you

tell me to concentrate. I have learned how. You know I don't like my new teacher. Well, now she can talk all day and I never hear a word she says."

Before you laugh at the crazy ideas you astutely discover in some of the so-called new schools, suppose you make a list of some of the ideas in the old ones. They are none the less crazy because you have grown used to them. The "mere parent" can choose as well as the educational expert. To help you sift the chaff from the wheat, answer these questions. What is education? What do my children do in school? What is a lesson for? Do children exist for lessons in this school, or is the school for the children? If you have answered them honestly, you are ready to choose between the old and the new according to your lights.

Are there any general, impersonal facts that stand out from this struggle between the old and the new to convince us that our dissatisfaction with schools is more than a tempest in a tea-pot? Decidedly yes. Three great factors in modern civilisation require changing schools if they are to survive. They have nothing to do with educational theories. The man in

the street, the slum child, the farmer are more affected by them than the university professor, hence perhaps the slowness in changing schools. These factors are the increase in scientific knowledge, the resulting industrial system, and a democratic form of government.

The first has made specialisation necessary. It used to be possible for a single individual to learn almost all there was to know in his corner of the world. All that was known could be pretty well compressed in a few books. By earnest and continuous reading it was possible to master it. It was the sort of abstract and speculative knowledge that could be grasped by reading. The discovery of scientific laws has revolutionised the world. Keep a child reading and reading from the first grade through college, as we do, and he has only scratched the surface of knowledge.

There are so many facts, and each individual needs such a different set of facts, that it is folly for schools to attempt to teach children all the things they may need to know. But the majority of schools are still doing this. And the facts they teach are the sort that were popular in the Middle Ages; the name of the highest mountain in South America, and the

names and reigns of the kings of England. You are fond of these facts because you learned them yourself. But, honestly, how much do you think they have to do with education? Did you get that general understanding which is the foundation of your intelligent attitude towards your job and your life from them? How much did school help you in acquiring it? Not very much, you say; you got it from experience.

So schools are not experience, or at least their curricula are not. They are magic doses from a mediæval prescription. They are the continuation of a method unsuited to the subject-matter of to-day. Suppose we tried to supply the world's present demand for cloth by hand looms. It would not be much more impossible than trying to educate by teaching facts. Education to-day must consist in learning to learn; finding out about knowledge and what it is for, so that it can be acquired and used when it is needed. This means that a child must know how to read. Reading is not merely pronouncing words; it is using books. He must know how to write. Writing is saying something, as well as guiding a pen. He must know how to figure, not so that he can tell the

teacher when train A will meet train B, but so that he can buy a loaf of bread, or find out how long it will take him to walk the five miles to the lake. It means, too, that he must know something about his own physical and social environment: physics, chemistry, biology, fundamentals of industry, and social relations, both political and historical. He cannot get this by memorising a few samples in a textbook. What he can get is the knowledge that such sciences exist; that they explain his own world, the things he wears and eats and passes in the streets, and the habits of his friends and relations. He can get control of the intellectual methods that have enabled society to pile up this vast classification and explanation of things and ideas. It is only as children, all children, get this that the fruits of knowledge can serve everyone.

Machines, and consequently the industrial system, are the direct result of scientific discoveries. They have multiplied the needs of man by supplying them. They have infinitely complicated the process of supplying them, taking manufacturing out of homes and concentrating it in factories. When it was carried on at home, children had opportunities to

supplement the magic facts of text-books by real work. Processes were simple, so that they understood what they saw and what they did. Compare, for instance, the educational value of association with the weaving industry as carried on in a New England home and a visit to a modern cotton factory. And how few children to-day ever have a chance to visit a factory!

What does a child to-day have to give him the understanding of his world that came from helping in the endless activities that went on in every home a hundred years ago? A little, if he live on a farm; nothing whatever if he live in a city slum. But schools still go on as if the old conditions prevailed. They have done nothing to supply the real experiences that he got out of school when each home or community was a self-supporting unit. The manual training and domestic science introduced in the upper grades of most schools are an obscure realisation of the need. But much of their value is lost because work in the two subjects has been distorted into text-book form; into a list of facts.

It is an educational axiom that children cannot know what they have never experienced. Examine the curriculum of the average school

and then study the rest of the daily life of children in a crowded city. There is almost nothing in these children's experience to prepare them for the world they will plunge into when they begin earning a living.

But, you say, schools cannot really be so unsuited to the process of growing up. They have been going on like this while men were discovering scientific laws, inventing machines and reorganising society. Whatever education such men had they got in schools. This is not strictly true. Leaders are not a typical product of education under any conditions. A streak of genius lifts them above the common run of men. They find experience and turn it to account in things at hand, no matter how meagre their environment. Nevertheless, the majority of leaders come from a social stratum with a varied and leisured environment. Not the least advantage of being born in comfortable circumstances is the opportunity it offers for getting real experience in childhood. The success of an educational system should be judged by the ability of people to live intelligently who had no useful environment or experience except school; not by the well-being of people whose daily life would have equipped them with the

tools of learning and the experience to understand their world without school.

Schools must be judged by such a standard if our ideas of social justice or democratic government are to be any more than an abstract conception. Any democratic organisation of society depends on the ability of every individual to participate. The conception grew up because of every man's sense of his own individuality. It can succeed only to the extent that each man's or woman's individuality finds expression. Educationally, individualism and democracy are not opposed. They are the same thing. We have not made good citizens when we have taught every child to read and write and salute the flag. That is not education, but a gilded ignorance that leaves undeveloped leadership, independence, and initiative—all the qualities that are necessary in a democratic society. An educated person is one who has had a chance to learn as much as his natural capacity allows, and thinks honestly along the lines of his own temperament and personality, understanding his physical and social environment. Such characters do not spring into existence with manhood. They develop gradually from the day the individual is born. It is the

school's business to let them develop, and to see that they develop so that they are a constructive force in society, not a dead weight or a destructive misfit.

What part does the Dalton Laboratory Plan play in the reorganisation of schools to meet these needs?

It offers a scheme for a material rearrangement of schools that permits the powers and abilities of the individual pupil to develop. Therefore it can be used as a device to enable an old curriculum to work as efficiently as possible or as a convenient organisation for radical departures from the conventional way.

Many educators, especially those in supervisory and administrative positions, feel that much can be done to eliminate misfits and waste by adjusting so that the individual masters the usual subjects as well and as rapidly as possible. This type of readjustment aims to meet two criticisms of public schools: graduates have not learned the common branches well enough to succeed in simple business positions, and so many years are spent on this part of education that young men and women cannot finish their professional training early enough.

It is possible to use the Dalton Plan as a

remedy for both these tendencies. It has been pretty well established that individual study is the best way to gain control of the tools of knowledge. Drill in reading, spelling, composition and arithmetic, once right habits are established, should be an individual matter where the pupil works only on his difficulties. This method can be used in the usual classroom, but the adjustment between the bright and slow pupils is always a problem. With free study and assignments, this takes care of itself. The good speller wastes no time repeating words he knows. He reviews the assignment, making sure he knows the lessons, and goes on with another subject. The poor speller can take the necessary time to learn the words properly without feeling hurried or tempted to hide behind the better pupils. It is not suggested that the Laboratory Plan alone is a permanent solution of this difficulty. The discovery of better teaching methods and the most essential subject-matter in the common branches is equally necessary.

The second objection—that too much time is spent in acquiring a half-mastery of these tools—requires even more searching investigation of the essentials of education for its ultimate

solution. But, meanwhile, the plan can be used as a time-saving device where that seems desirable. It has been suggested that it would be possible to use the laboratories and assignments without trying to keep a class together. Where the course of study is divided into monthly contracts, a pupil could advance as rapidly as he was able to do the work. A rapid worker can often finish the contracts in all his studies in less than four weeks. Instead of giving him supplementary reading of special reports, he could be given the contracts for the following month's work, thus doing eleven or more months' work in the ten months of the school year. In this way, some pupils could save a year or more of the time usually spent in preparatory school. Some such use of the plan is undoubtedly desirable in special cases where, for some chance reason, a child is in a low grade for his years or is behind in some one subject. But it seems unwise to advocate adopting the plan in this form for a whole school population. Ignoring the problems of the social phases of school life that would arise, administrative difficulties would almost surely bring bad results. If every child in a school were starting syllabuses of one-tenth of

the year's curriculum at any time he was ready for it, the courses of study would have to be committed to paper down to the last detail. The teacher would be so occupied with examining, recording and starting new assignments that she would have little opportunity for the real business of teaching. It would be practically impossible to get group reactions to courses of study, or to turn the attention to anything but the machinery for advancing pupils through the prescribed syllabuses. The machinery would defeat the aim of the plan: that of freeing the school organisation to make it possible to meet the needs of the individual. It would seem a mistake to attempt to meet problems that come admittedly from the curriculum by concentrating on its administration alone.

Experience with the plan seems to indicate that its real contribution to educational problems will be along the lines of facilitating curriculum changes. The freeing process for both teacher and pupil it accomplishes will help to clarify the difficulties in our present system. If the plan ultimately enables children to read, write and figure better than they learn to do now, it will be because it puts the

responsibility for effort on the child, developing an intelligent, resourceful method of attack that will give a better product. If it proves to be a method for shortening the years in preparatory schools, it will not be because it permits a pupil to get through a fixed syllabus more quickly, but because of the liberation of the individual's abilities that enables him to profit more from every experience. That is, the mental habits and character qualities that are apparently fostered by the plan will force the elimination of the trivial and the alteration of curricula to include the things that are most essential.

School organisation plans for individual study and subject promotion are often criticised by the leader in progressive education on the grounds that they tend toward a fixed departmentalisation and so interfere with building up a school where children can lead a real and complete life. There is no doubt that, if the Dalton Laboratory Plan is regarded simply as an efficiency measure, an opportunity to help pupils to learn the facts of a fixed course of study more thoroughly and perhaps save a year or two of their school life, this might result.

But the plan appears to be of some use to

the school that is interested in a more complete reorganisation to meet the three needs of modern society outlined above. In such schools, the aim is not to help the children to get through a certain amount of classified information, but to give them control of their own powers and the tools of learning through using them in a school life that explains the real world. Obviously, this requires a carefully set-up environment and sufficient drill to ensure the efficient use of tools. This environment will be classified in terms that seem best to present the desired type experiences to children. With the laboratory plan, the subject rooms and assignments can be set up in these terms. The contract will not be assignments in five academic subjects, but two or three large topics for study. This study will require work in a general science laboratory, in the library, in the carpentry shop and studio, as well as composition, arithmetic and geography. The whole project can be planned by the staff of teachers co-operating to ensure a proper proportion between the subjects and opportunities for the necessary drill. This would be the pupil's contract. Then, by consultation with individual teachers, the class could fill in the details.

of their contracts, and decide what portions of the work will be done in each laboratory. As a child needs special advice or equipment, he will go to the appropriate laboratory. In this way, all written work will be exercises in English, composition and penmanship, as well as having value in its content. Arithmetic that is done in connection with cooking or geography will be done under the supervision of the mathematics teacher, and so will be advancing the pupil in his control of that tool and at the same time have an immediate end.

Many schools have organised the curriculum on this basis. They have had to change the conventional idea of subjects and the usual management of the time schedule to meet conditions of productive work. A number have already developed an organisation similar to the Dalton Plan for their shop, cooking or art work. These subjects are not taught at certain fixed times, but the pupil uses the resources of the teacher and the laboratory as he needs to sew, cook, do woodwork, or use art principles and technique for the larger topic. The experiment of including other subjects in the category of workshops would obviate some

of the difficulties of the project method. The school librarian is available at any hour of the day during which the child needs to consult reference books or select reading. Why not have the English teacher available whenever the class is actually writing a story, a geography report, or a science paper? The divisions to be made in the curriculum and the limitations of the method will be fixed by the needs and condition of the particular school.

Complete experiences, individual work and scope for interests are essentials in both the Dalton Plan and the "project method," when either is explained in theoretical terms. If these essentials are made concrete with the needs of childhood in mind, there should be no conflict between the two methods. Neither will stand the test of time unless it is adjusted to meet particular situations and new needs. The difficulty is often an inability to separate education from our conception of what schools must be. The project method has freed itself from one side of this conception, the school of classified and isolated facts. The Dalton Plan frees itself from the other half, the school of piecemeal assignments, bells and hard learning and recitations. One contributes a new subject-

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matter to meet the needs of modern life; the other a way to give children working conditions that accord with the discoveries of modern psychology. All such experiments furnish the stuff from which new schools that shall truly educate all our children will be built.



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